January
1961

COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

ANNUAL SURVEY REVEALS OPTIMISTIC OUTLOOK FOR 1961 FERTILIZER SALES

SEE PAGE 19

Advertisement of Nitrogen Division, Allied Chemical Corporation

sleek... trim... and perfectly coordinated!

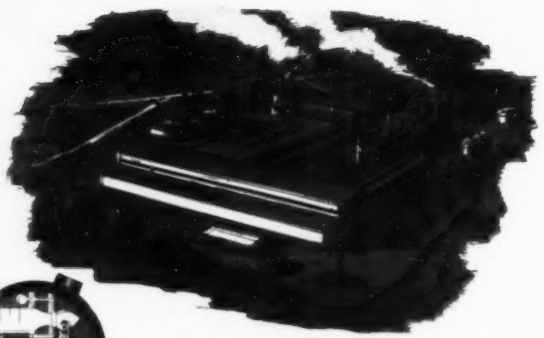
That's our new 300,000 sq. ft. multiwall bag plant at St. Marys, Ga.

Like the building itself, our equipment is new and the very latest in mechanical efficiency.

This fully integrated plant has every facility for turning out every kind of multiwall bag . . . open mouth or valve, sewn or pasted, stepped-end, and our own patented Kraft-lok® valve; also bags with special inserts, sleeves, protective linings or outers, and vapor barriers.

The best in multiwall bags—are Kraft Bags!

. . . and the best in open mouth bag filling machines is The Kraftpacker, for which we are exclusive sales agents.



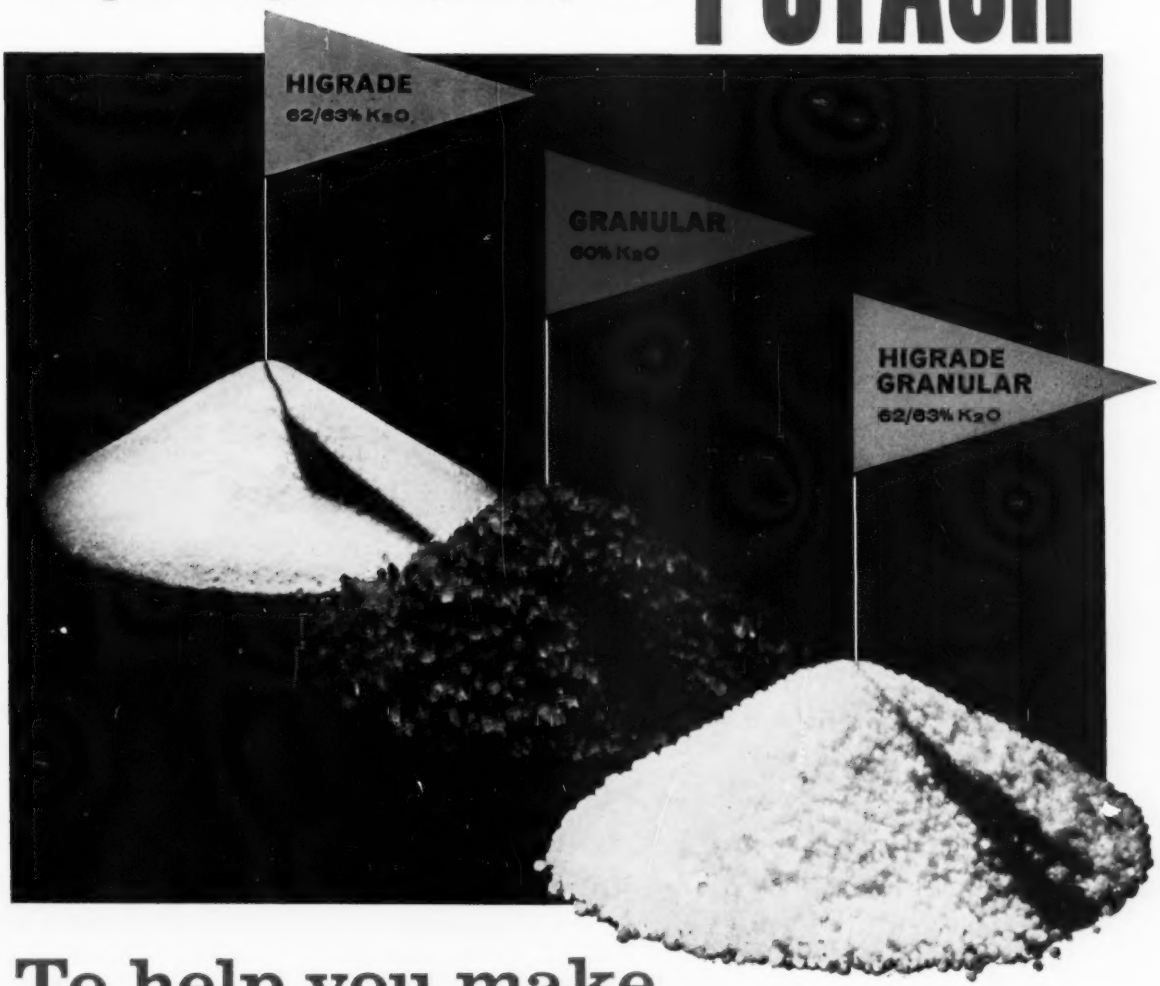
Paper Mill at St. Marys, Ga.

KRAFT BAG CORPORATION
Gilman Paper Company Subsidiary
630 Fifth Avenue, New York 20, N. Y.
Daily News Building, Chicago 6, Ill.

☐ We would like to know more about Kraft Bag Multiwalls.
☐ We would like to know more about The Kraftpacker.

COMPANY NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____
PRINCIPAL_____
PRODUCT MFD_____ CF

For you--3 types of specially sized POTASH



To help you make the best fertilizers...

Now Available!

FERTILIZER BORATE-65

...A NEW SOURCE OF BORON TO SAVE YOU MONEY!

Here's boron at lowest cost per unit! This highly concentrated source of B_2O_3 has a 178% borax equivalent. It can save dollars for you on costs of handling... storage... and transportation. It can also improve the physical condition of your mixed fertilizers.

Order Fertilizer Borate-65 now!

Here is potash you can depend upon—for highest quality—for maximum freedom from caking in storage and handling. Take your choice of three types; all readily available for immediate shipment. You'll find each to be ideally sized to meet your current manufacturing requirements.

For more than a quarter of a century, our potash products have kept pace with all the exacting specifications of the fertilizer industry. That's why you can confidently count on getting exactly the kind of potash you want... when you want it... from U. S. Borax & Chemical Corp.

Expert technical assistance is yours for the asking—without any obligation. Write today for technical data and shipping information.

50 Rockefeller Plaza, New York 20, N. Y.

Sales Offices in:
ATLANTA • CHICAGO • LOS ANGELES

U.S. BORAX

COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

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COMMENTING FREELY

by

Bruce Moran

What we have been trying to say here for a long time was said in 9 words recently by Albert E. Forster, chairman and president of Hercules Powder: ". . . the science of agriculture has far outrun its practitioners . . ."

With the number of farms dropping by 20% in the past 10 years, and a population explosion facing us, by 1975 the farmer who now feeds 25 others will be feeding 42, the projections indicate. That will mean a number of things:

The farmer must learn to reach the production potential of available arable fields. He must buy more soil management tools, which includes fertilizer. He must spend a lot more than the present $1,500,000,000 on this fertilizer — and learn well how best to use it.

Which brings us back to Mr. Forster, who also said: An aggressive program of farm education is vital to future development . . . a job that the workers in agriculture cannot do alone, and one in which the chemical industry's aid would be most welcome.

How Union-Camp's 5-Star Plan saved multiwall user up to $450 per carload of bags

This is a new kind of "Big-Inch" story.

A major mid-west packer* wasn't convinced his multiwall bagging operation was all it might be. Could Union-Camp's 5-Star Multiwall Plan help?

To get the answer, Union-Camp multiwall specialists visited the plant. They found that the automatically filled bags occasionally stuck in the sewing head. Also, that the sewing line tended to "belly" and form an arc pattern. The result was considerable loss in production and frequent breakage. Another problem—the bags didn't warehouse well.

"Sew-Straight" Solution

After completing their analysis, the Union-Camp men suggested installing a "Sew-Straight" attachment right onto the sewing head. The bags could now be closed with an "E" head in a perfectly straight line. And only *1 inch* from the top of the bag. That single inch made all the difference.

Less paper—less breakage

To begin with, shorter bags could be used. The savings in paper alone cut the firm's multiwall costs from between $350 to $450 a carload. Imagine the savings based on several dozen carloads a year!

Before and After. Old, semi-circular closure pattern (left) and the new closure (arrow). Note the straight sewing line, and how close it is to the top of the bag.

The new attachment also speeded production by eliminating sewing head jam-ups. Moreover, since the top closure is now identical to the *factory-sewn* bottom closure, the bags form a perfect pillow shape—no awkward ears. This makes them easier to handle . . . easier to stack. And there's less breakage and fewer rejects.

How much could you save?

Perhaps an idea unearthed through Union-Camp's 5-Star Plan could save you money. The chances are excellent. For every day, multiwall users, large and small, are reducing their multiwall costs by capitalizing on this comprehensive packaging service. Their savings run from a few thousand dollars to over $100,000 a year.

Apart from bag construction, this economy program covers bag design, specifications control, packaging machinery, and a survey of your materials handling operation. And it costs you nothing—regardless of the brand of bags you now use.

FREE 16-PAGE BOOKLET

Write Dept. M-3 today for a free copy of Union-Camp's new 5-Star Plan booklet. It describes many case histories showing how packers like yourself have achieved greater efficiency and economy in their multiwall operation.

UNION-CAMP®
MULTIWALL BAGS
Union Bag-Camp Paper Corporation 233 Broadway N Y 7 N Y

* NAME ON REQUEST

Cyanamid technical representatives spend thousands of hours every year in our customers' plants working on problems like this one: installation of a meter for measuring phosphoric acid as it is pumped from tank cars.

HIS BUSINESS IS MAKING YOUR BUSINESS BETTER

Like all the men and women in Cyanamid's phosphate operation, his only business is phosphates for your mixed fertilizers

He's one of several hundred Cyanamid people who mine, process, research, deliver and service phosphatic materials for your acidulation and mixed fertilizer business. These people put Cyanamid's more than 40 years of phosphate experience into the kind of products and services you can use. Take advantage of both. Pick up your phone and call your Cyanamid representative.

Services you can use

Traffic Service: Cyanamid traffic specialists are ready to route and ship your orders without delays. Their knowledge can save you money and can make your operation run even more efficiently.

Technical Service: Cyanamid's staff of technical experts are on 24-hour alert. Often, what are new problems to you are solved problems to them. Make your formulation and production problems theirs. That's their job.

Sales Service: Cyanamid sales representatives are available to work with and for you in expanding present markets or in establishing new markets.

Products that serve: Cyanamid's only phosphate business is mining and manufacturing the highest quality products for your mixed fertilizer requirements.

- Florida Natural Phosphate Rock.
- TREBO-PHOS* — Triple Superphosphate.
- Phosphoric acid for acidulation.

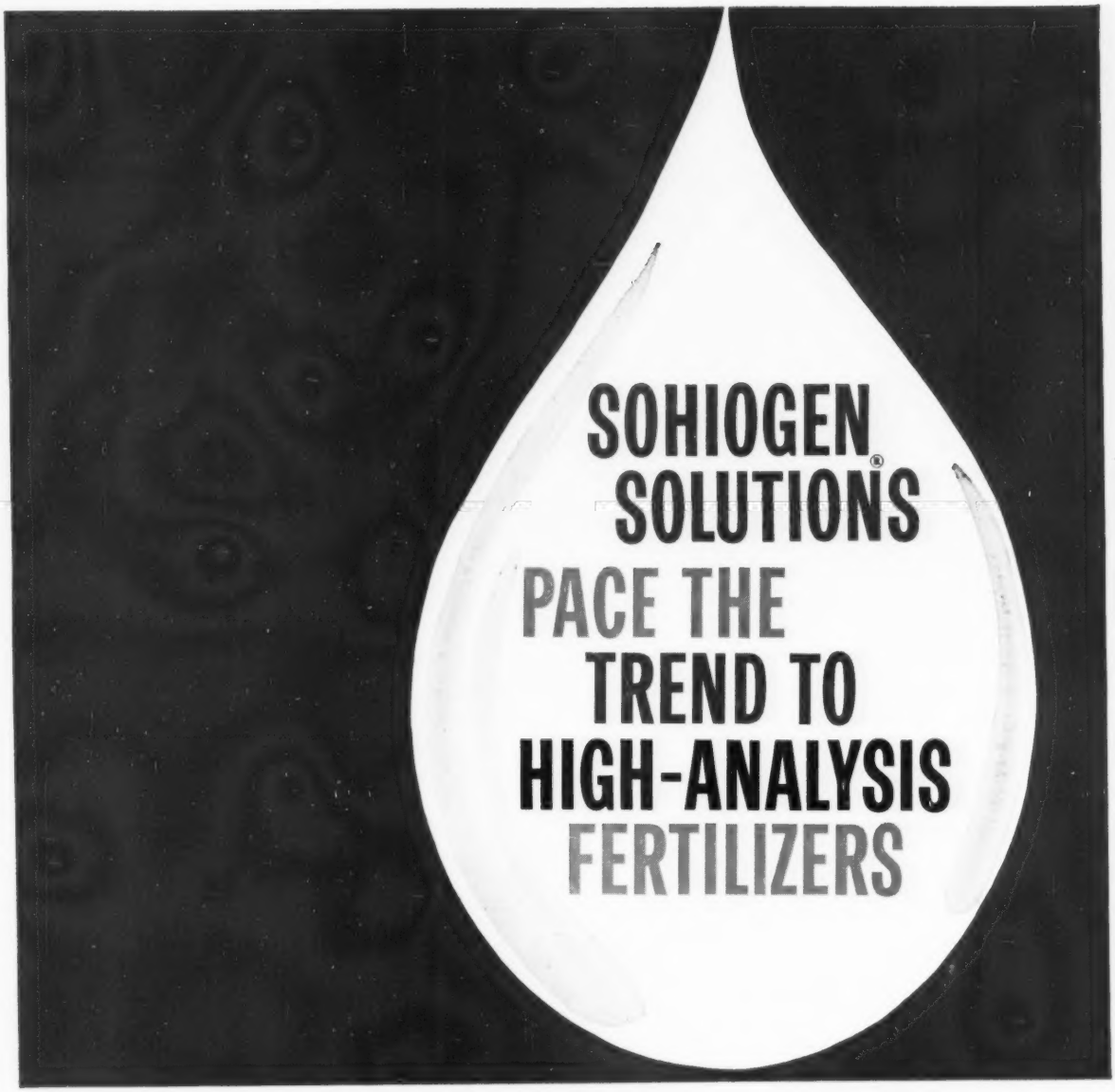
To manufacture fertilizers that sell . . . mix with Cyanamid's phosphates and service.

American Cyanamid Company, Agricultural Division, N. Y. 20, N. Y. **TREBO-PHOS is American Cyanamid Company's trademark for its triple superphosphate.*

CYANAMID

PHOSPHATE PRODUCTS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE



With changes coming at a startling rate in the fertilizer business, just keeping up with them can be a problem. But Sohio keeps its customers ahead of the trend to high-analysis fertilizers by tailoring solutions to the times.

Sohio specialists who work with you match your requirements from a full line of Sohiogen solutions and Sohio nitrogen materials — ammonia, ammonium nitrate, and urea — blended to a wide range of chemical and physical properties.

Technical help. The right material for your job. Johnny-on-the-spot delivery. All add up to fewer problems and lower production costs at your end of the line. Ask your "Man from Sohio" for the full story.

YOU GET THESE EXTRA ADVANTAGES WHEN YOU DEAL WITH SOHIO:

- Higher nitrogen content solutions (concentrated solutions containing less water).
- Higher fixed-to-free ratio solutions (solutions containing higher ratio of salts to ammonia).
- Development of new solutions to satisfy specific needs for higher fixed-to-free ratio solutions.
- Addition of urea to lower saturation temperatures (making it possible to use special solutions).
- Full technical assistance and service in using more solutions for production of fertilizers.
- Development of solutions adapted to preneutralization.

...we're serious about SERVICE at Sohio

SOHIO CHEMICAL COMPANY

Agent for Solar Nitrogen Chemicals, Inc.

Fort Amanda Rd., P.O. Box 628 • Lima, Ohio
Phone CApitol 5-8015 or wire (TWX call letters LIMA O 497-U)

A1—61

JUST AROUND THE CORNER

By Vernon Mount

THE INDUSTRIAL COMMUNITY is showing by pocketbook action that it has no fear of Kennedy. Major concerns closely related to the fertilizer industry have announced capital investments coming up that match or exceed those for last year. These are concerns whose markets cut straight across the industrial and consumer fields - so their judgement is on a very broad basis.

EVEN A UNION MAN in the cabinet need frighten no one, because he must lean over backward to avoid the appearance of prejudice, and must therefore be more conservative than would otherwise be the case.

THE AGRICULTURE SECRETARY'S first official words expressed his recognition that the farm problem is not a simple one, and even the Secretary of State is the son of a poor Georgia farmer. The new President, himself, is a believer in research of an economic as well as a technical nature.

SO THE FUTURE on the farm seems to be brighter and will be if economics, not politics, guides the decisions made for the next four years. For it is essential that sound business administration of our farms be encouraged.

Vernon Mount

AWCo

Your One Stop Service for

• NITROGEN • POTASH
• SULPHUR • ORGANICS

Foreign and Domestic Fertilizer Materials

Exclusive Sales Agents For:

DUVAL SULPHUR & POTASH COMPANY
ESCAMBIA CHEMICAL CORPORATION

ASHCRAFT-WILKINSON COMPANY

HOME OFFICE: ATLANTA, GA.

BRANCH OFFICES: Norfolk, Va. • Charleston, S. C. • Tampa, Fla. Jackson, Miss. • Columbus, Ohio Montgomery, Ala. • Des Moines, Iowa

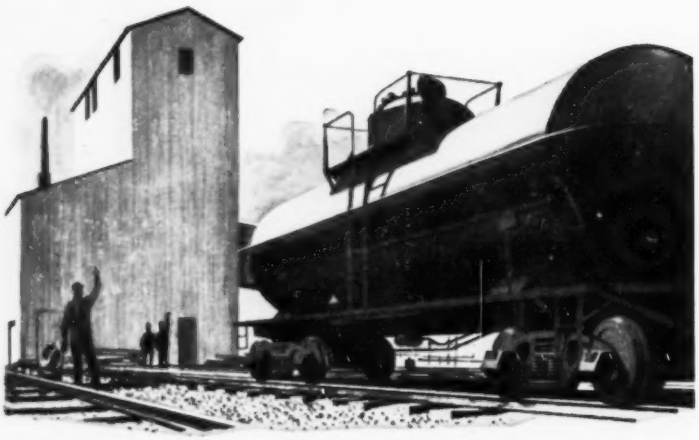
"Tell me again that part about 'you're beautiful'"

"You're beautiful because your colors are bright —and you're so loaded with that certain perfection Chase always gives!" "That certain perfection" is really a host of little details that Chase never overlooks. For instance, every Chase plant employs an "Ink Man," just to keep constant watch over hundreds of different hues, and to help Chase's skilled color-printing craftsmen put them to the very best use. All this so your products go to market in the most inviting way possible! As for *economy* and *utility*...these are an integral part of every Chase Bag. For facts about bags for any purpose, call your Chase Man, or write us.

CHASE BAG COMPANY
355 Lexington Avenue – New York 17, N. Y.
32 plants and sales offices coast to coast

MULTIWALLS • TEXTILE • PLASTIC AND LAMINATED BAGS • CONSUMER-SIZE PAPER BAGS AND OTHER PACKAGING MATERIALS

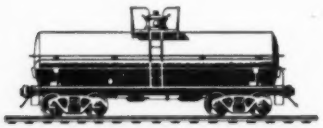
DEPEND
ON
PHILLIPS 66
FOR
Fast Deliveries



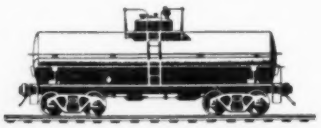
when you need fertilizer mixing materials

The industry's largest fleet for transporting liquid nitrogen . . . plus careful traffic control . . . assure you of materials when you need them. Call or write today; let us show you that we mean business in making on-time deliveries of high quality materials that mean more business and profits for you.

Use these high quality materials to produce premium fertilizers



NITROGEN SOLUTIONS



ANHYDROUS AMMONIA

AMMONIUM NITRATE

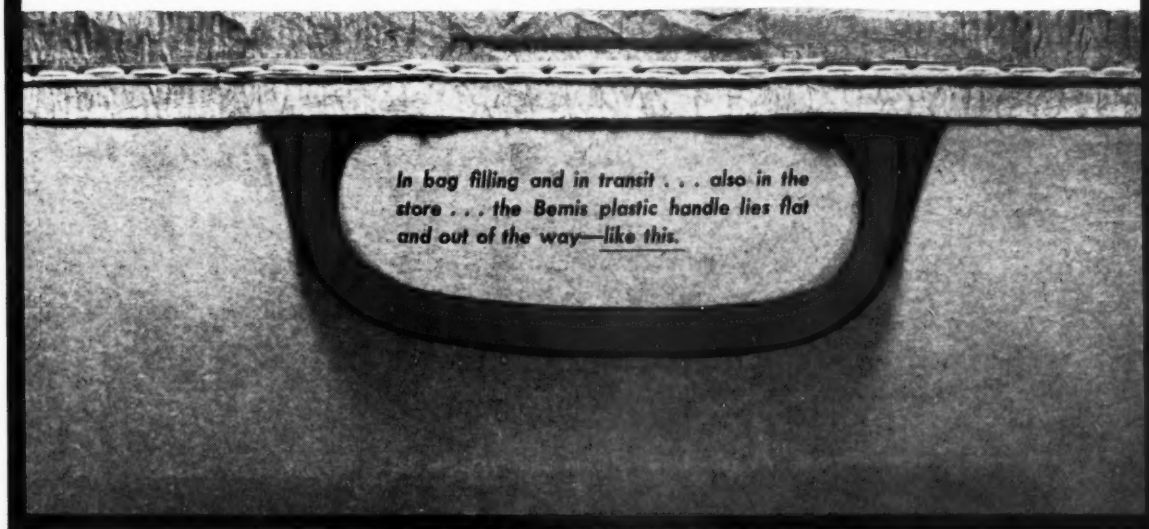
AMMONIUM SULFATE

TRIPLE SUPERPHOSPHATE

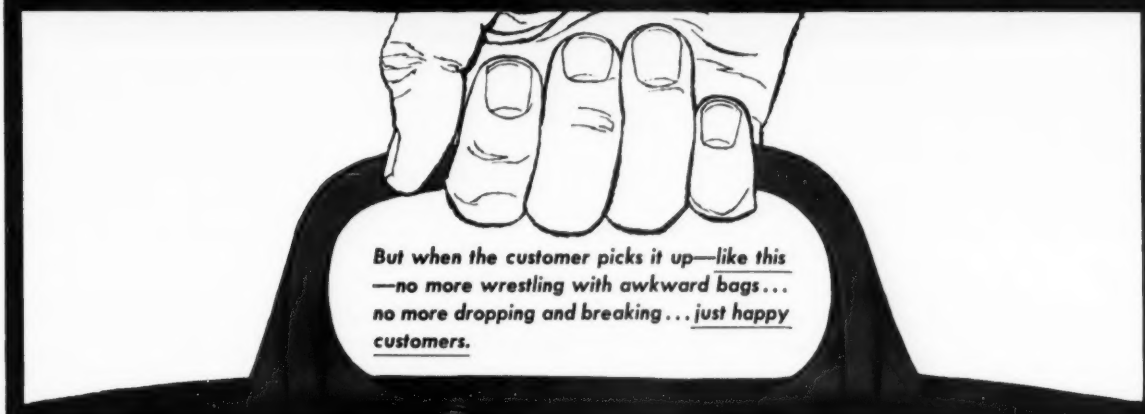
PHILLIPS 66

PHILLIPS PETROLEUM COMPANY - Sales Offices: Amarillo, Tex., First Nat'l Bank Bldg. • Atlanta, Ga., 1428 West Peachtree St., • Bartlesville, Okla., Adams Bldg. • Chicago, Ill., 7 South Dearborn St. • Columbus, Ohio, 395 E. Broad St. • Denver, Colo., 1375 Kearney St. • Des Moines, Iowa, 6th floor, Hubbell Bldg. • Houston, Tex., 6910 Fannin St. • Indianapolis, Ind., 3839 Meadows Drive • Kansas City, Mo., 201 E. Armour Blvd. • Maplewood, N.J., 2075 Millburn Ave. • Minneapolis, Minn., 215 South 11th St. • Omaha, Neb., 3212 Dodge Street • Pasadena, Calif., 317 North Lake Ave. • Raleigh, N.C., 401 Oberlin Road • Salt Lake City, Utah, 68 South Main • Spokane, Wash., 521 East Sprague • St. Louis, Mo., 4251 Lindell Blvd. • Tampa, Fla., 3737 Neptune St. • Tulsa, Okla., 1708 Utica Square • Wichita, Kan., 501 KFH Building

ANNOUNCING . . . THE FIRST COMPLETELY SATISFACTORY HANDLE FOR MULTIWALL BAGS!



In bag filling and in transit . . . also in the store . . . the Bemis plastic handle lies flat and out of the way—like this.



But when the customer picks it up—like this —no more wrestling with awkward bags . . . no more dropping and breaking . . . just happy customers.

Bemis Handle Bag

WITH MOLDED PLASTIC HANDLE!

A major merchandising advance! Look at these benefits: Won't break • Won't pull loose • Molded to fit the hand comfortably • Easy to carry • Available in 4 colors—red, black, green, yellow • Enhances the appearance of your package.

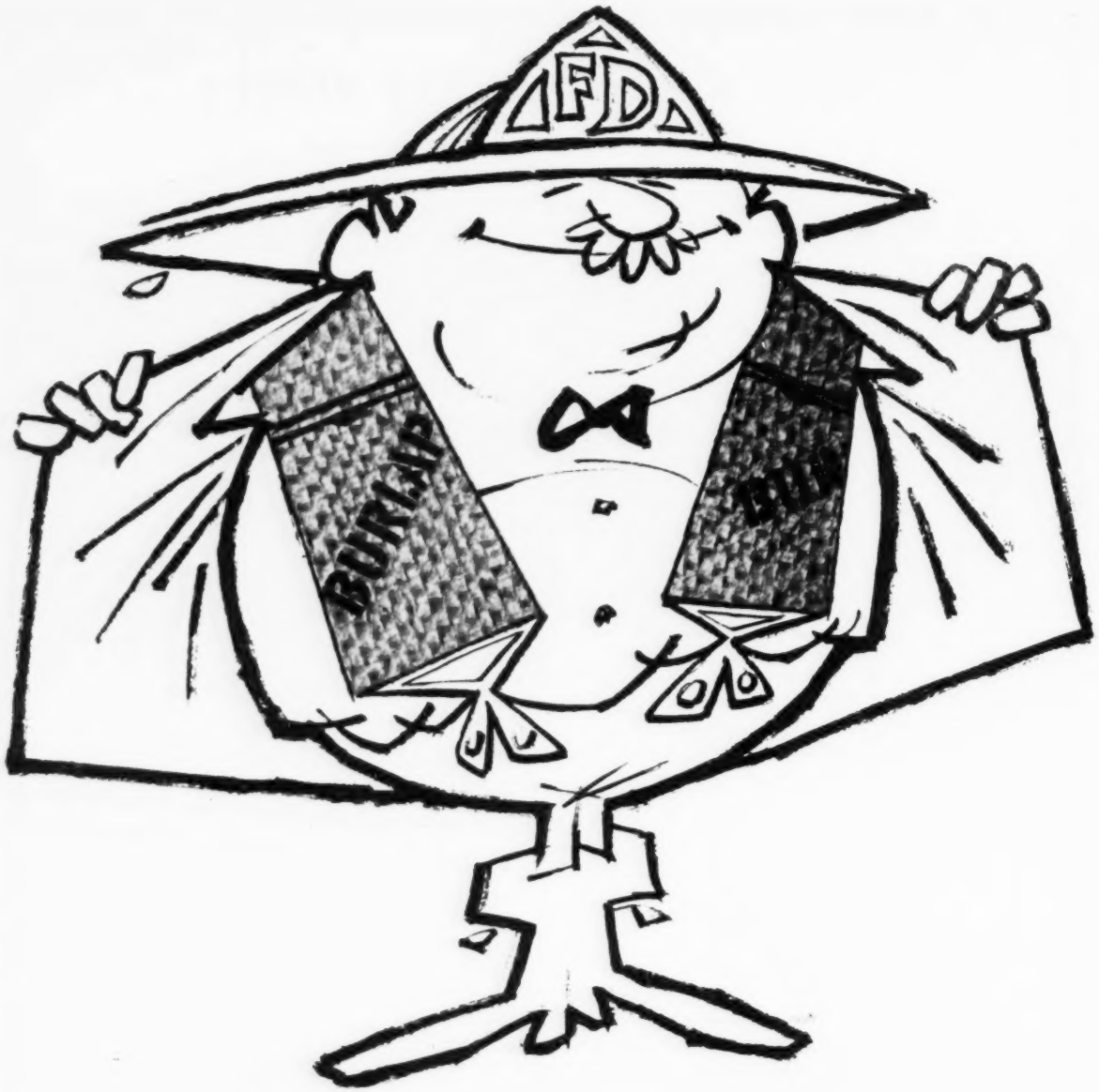
Bemis Handle Bags are ideal sales-building packages for dog food, rock salt, fertilizer . . . actually, just about anything you would package in bags up to 25- or 30-lb. capacity.

Ask your Bemis Man for the complete Handle Bag story.

Bemis

Where flexible packaging ideas are born

GENERAL OFFICES — 408 PINE STREET, ST. LOUIS 2 • SALES OFFICES IN PRINCIPAL CITIES

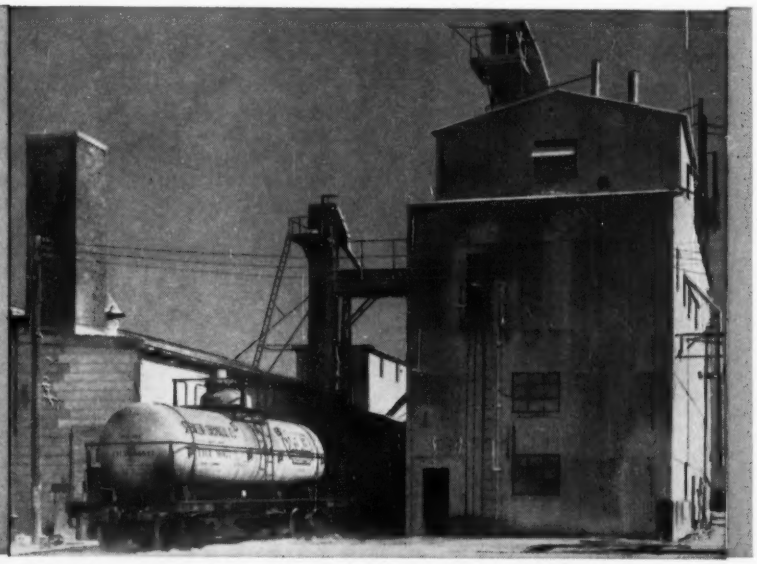


Only Burlap can hold 200 lbs. safely!

Want *important* savings? Use burlap. You save on space, because burlap bags stack higher. You save on waste...burlap keeps breakage down. You save on handling costs...only burlap can take on 200 pound loads. You save on the bags themselves...burlap is re-usable. And another big plus...the farmer likes burlap. *He* asks for it. You should too.

THE BURLAP COUNCIL · 122 East 42nd Street, New York 17

R. N. Stewart, Manager, Ark-Mo Plant Food Company, Walnut Ridge, Arkansas. Mr. Stewart has been with Ark-Mo 12 years.



Setting the pace in Arkansas, the Ark-Mo Plant Food Company became the first fertilizer manufacturer in that state to install granulating equipment. Working with Spencer Tech Service specialists, they developed a new granulating process. Read about the help you, too, can get from Spencer:

Spencer Helps Ark-Mo Plant Food Company Pioneer Arkansas' First Granulation Plant

Walnut Ridge, Arkansas, is the home of that state's first fertilizer granulating plant—thanks to the progressive spirit of the Ark-Mo Plant Food Company and the know-how of Spencer's Tech Service team. Together, they pioneered the development of a new granulating process.

Experienced Spencer specialists worked with Ark-Mo from the early experimental stages to help design and engineer the new facilities. A long-time SPENSOL user, Ark-Mo produces 50,000 tons of fertilizer a year.

Helping mixers overcome production problems is a challenge that Spencer Tech Service men often face. They have vast experience — both in the field, and through Spencer's own pilot fertilizer mixing plant. Maintained especially for research, this pilot plant is the scene of continuing experimental work.

So, whether your problem is building a new facility, or improving the efficiency of an old operation, Spencer's Tech Service men stand ready to help you find the best solutions. As a prime supplier of nitrogen to the industry, Spencer makes reports of pilot plant experiments available to all manufacturers. You need not be a SPENSOL GREEEN* user—just mail your request to Spencer at the address below. For assistance on a specific problem, contact your Spencer representative. No obligation.

*SPENSOL GREEEN is a trademark of Spencer Chemical Company.

Why SPENSOL GREEEN Cuts Your Corrosion Costs In Half:

Below are results of laboratory tests comparing SPENSOL GREEEN with competitive ammoniating solutions. Note that SPENSOL GREEEN is less than *half* as corrosive as the nearest competitor. That's why you can save repair costs, parts and down time by doubling the life of your equipment with non-corrosive SPENSOL GREEEN!

Number	Corrosion (In. Per Year)	Variation From SPENSOL GREEEN
Brand A	.021	91%
Brand B	.024	118%
Brand C	.300	2,630%
Brand D	.022	100%
Brand E	.234	2,030%
Brand F	.017	54.5%
Old SPENSOL	.017	54.5%
SPENSOL GREEEN	.011	.....

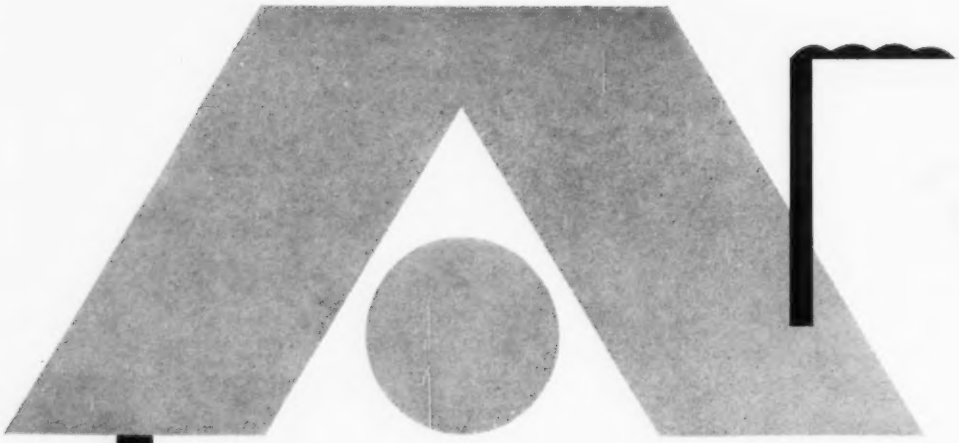
Insist on **SPENSOL GREEEN**

NON-CORROSIVE AMMONIATING SOLUTIONS

SPENCER®

Spencer Chemical Company
Dwight Bldg., Kansas City, Missouri

Sales Offices: Atlanta, Ga., Chicago, Ill., Memphis, Tenn., Omaha, Nebr., Kansas City, Mo.
Works: Pittsburg, Kans., Henderson, Ky., Vicksburg, Miss.



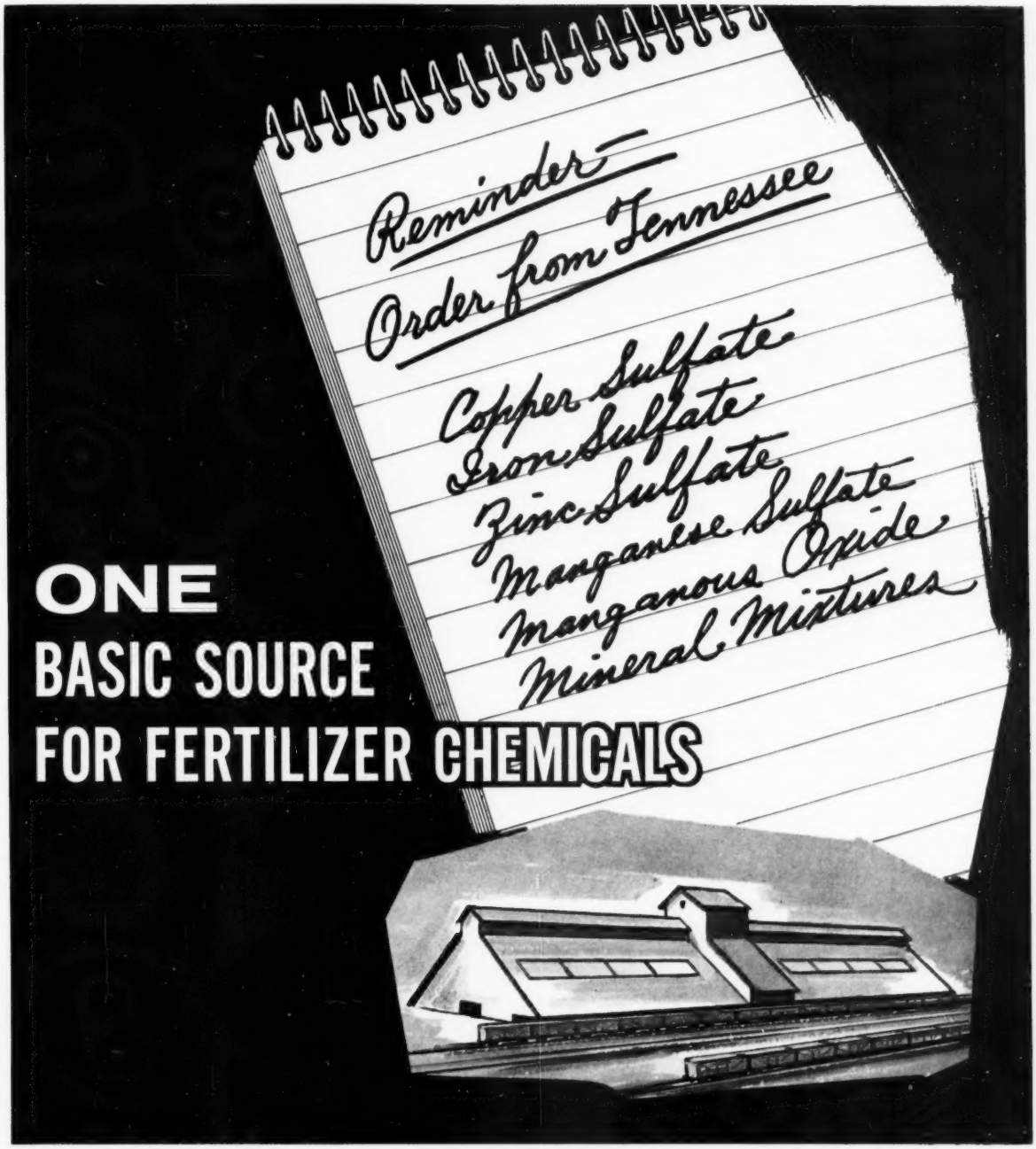
A $60,000,000 STEP IN ARMOUR'S PROGRAM OF PROGRESS

As America's need for more and better fertilizers grows, Armour Agricultural Chemical Company continues to improve its products and expand its facilities. The latest example of Armour's progressive philosophy is its new $60,000,000 program for increasing its nitrogen and phosphate production facilities. By 1962, new installations will approximately TRIPLE Armour's production of these materials. A nitrogen plant will be built near Sheffield, Alabama, and a phosphate plant near Fort Meade, Florida. In addition, facilities for manufacturing mixed fertilizers will be expanded and modernized.

New installations larger facilities and ever-improving technical methods have made Armour the most respected name in the fertilizer industry: a name synonymous with quality and dependability. The Armour Program of Progress is devoted to improving the products and services that have made the Armour "A" a symbol of quality in the fertilizer industry . . . the "BIG A" in agriculture.

31
SALES OFFICES SERVING THE FERTILIZER INDUSTRY

ARMOUR AGRICULTURAL CHEMICAL COMPANY
General Offices, Atlanta, Georgia



For more than thirty years we have produced trace elements for the fertilizer industry.

GET THESE PLUS FACTORS—

Cut cost with combined carload lots from One Basic Source or save time, plant space and labor by using our Custom Formulated Mixtures—We will furnish you combinations of minerals mixed to your particular specifications.

Foliar Nutritional Products—

Iron, Zinc and Manganese Compounds—Nu-Iron, Nu-Z, Nu-Manese and Es-Min-El (a foliar applied mineral mixture).

For further information, phone, wire or write—

TC TENNESSEE CORPORATION

612-629 GRANT BUILDING, ATLANTA 3, GEORGIA

THERE IS ONE BEST BAG FOR YOU

Balancing maximum strength with economy is a delicate operation. Kennedy multi-wall bags in a wide range of specifications, include one best suited to your needs and budget. Our engineers can help you select a standard bag or design a special bag to meet your requirements. ■ **Other Kennedy products include**—Zip-Lip reclosable poly bags for sampling and small packages, plastic and paper bags and products, car liners, printed roll stock and flexible packages of all kinds.

...Kennedy Makes it

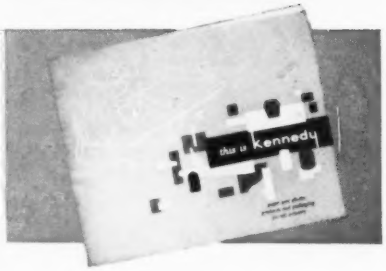
Open mouth
or valve construction

Standard kraft or extensible kraft, liners, sleeves and vapor barriers

Printed or plain

kennedy

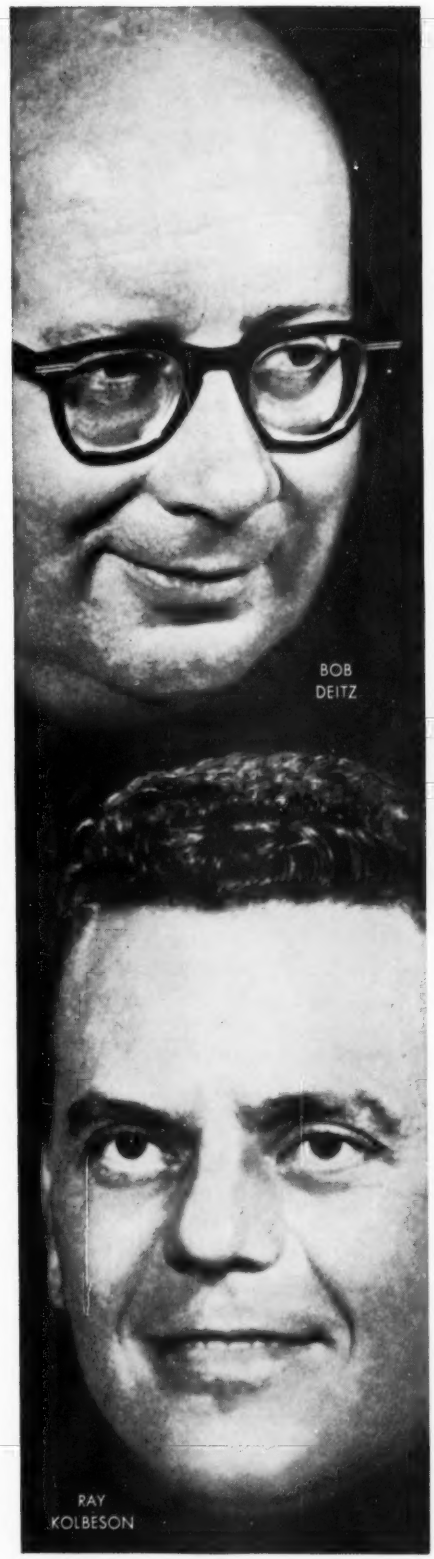
"This Is Kennedy—" a well-illustrated brochure, describes the plant, products and people who can work for you. It's free—ask for a copy today.



KENNEDY CAR LINER & BAG COMPANY, INC.,

9000 Prospect Ave., Dept. A, Shelbyville, Indiana

These men guard the quality of your fertilizer chemicals from U.S.I.



Many U.S.I. customers in the fertilizer industry know Bob Deitz and Ray Kolbeson. As chief and assistant chief chemists at our Tuscola, Ill., Plant Laboratory, their imprint is on each tank truck and car of U.S.I. fertilizer chemicals — ammonia, nitrogen solutions, sufuric acid and phosphoric acid — shipped from Tuscola. They head a team responsible for the quality of all fertilizer chemicals made at Tuscola.

Yet these chemists do much more than simply provide the customer with an analysis of each shipment. They inspect plant production continually to help maintain the consistent quality customers require. And the analytical knowledge possessed by Bob, Ray and their colleagues is at the disposal of U.S.I. customers for all sorts of problems.

For example, they will perform special analyses for trace materials or uncommon constituents . . . will provide both standard and special test procedures. They have helped newcomers to the fertilizer business set up labs by providing advice on equipment, procedures, personnel. And they have carried out check analyses with customer labs.

Both men bring wide experience in the field to their jobs. Bob has been an industrial chemist for 20 years—three of them as a referee analyst in inorganic chemistry. He is now a member of the National Plant Food Institute's Task Force for Liquid Fertilizers. Ray numbers 12 years as a research and industrial chemist.

These men work for you as well as for us. A call to U.S.I. Heavy Chemical Sales in New York — OXford 7-0700 — can put them at your service.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
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Branches in principal cities

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ANOTHER TECHNICAL ADVANCE FROM WEST VIRGINIA

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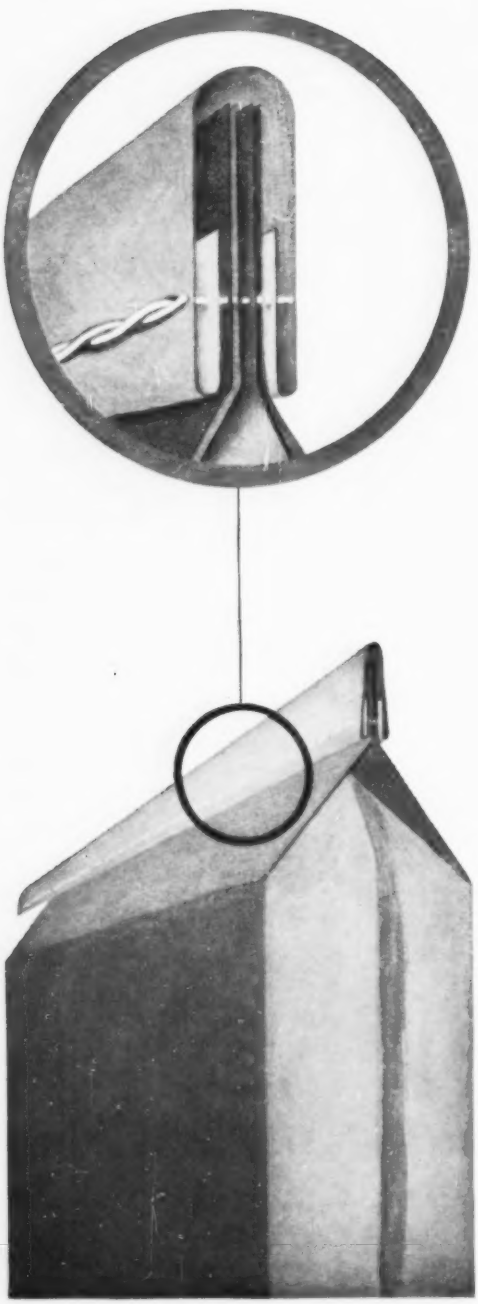

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Arcadian® News

Volume 6 | For Manufacturers of Mixed Fertilizers | Number 1

ANNUAL SURVEY REVEALS OPTIMISTIC OUTLOOK FOR 1961 FERTILIZER SALES

Nitrogen Division's annual survey to determine the market potential for fertilizer reveals many promising signs. Comments by leading industry representatives across the country indicate there is widespread optimism about further growth in sales of mixed goods during 1961.

The outlook has even improved a little over forecasts made last spring for continued fertilizer sales increases, according to Nitrogen Division.

Major part of the growth will probably be in the North Central region, particularly the West North Central, the survey shows. Some progress is expected in the Middle Atlantic, Southern and Western regions. The forecasters think New England will hold steady. No region is expected to decline.

However, realization of a good fertilizer year depends, as always, on weather conditions being normal or better.

The trend toward high-analysis fertilizers will continue, industry leaders believe. High-nitrogen grades are popular, and indications are their sales will grow throughout 1961.

Corn acreage is expected to be reduced slightly—probably by less than two million acres. Some corn land in the Midwest will be diverted to soybeans, but this will represent only a small part of the increase in soybean acreage. The trend to less corn in the Southeast may continue. But in spite of these conditions, the Nitrogen Division survey shows more corn land may be fertilized at higher rates than ever before, weather permitting.

Cotton acreage, it is indicated, will be up during the coming season. There is some anticipation of a rise in the support price. Bulk of the million-acre increase in 1961 cotton allotments has been given to the area east of Texas. However, these farmers traditionally underplant and abandon much more acreage than growers do in the West.

Small grain acreage may be up a little. Wheat will be about the same, but oats will probably increase due to higher prices relative to other feed grains.

Look for some substantial growth in sugar beet acreage, because of the Cuban sugar situation. There will not be an acreage explosion; the U. S. lacks sugar beet processing facilities.

Acreages of other major crops are expected to be about the same as they were last year.

Larger harvests that offset lower prices are why farm income went up slightly in 1960. The income and general cost situation is favorable toward more fertilizer sales. Biggest rise in farm costs in 1960 was interest on mortgage indebtedness, which was up 10%. Taxes were up 8%. Fertilizer costs increased 1%. This should encourage farmers to try to produce more yields on existing land.

Southeastern Comments

Comments from the Southeast point to many reasons for a promising fertilizer year ahead. In the opinion of one industry leader, optimism can be based on the fact that most farmers agree they had a good year in 1960.

Another Southeastern representative reports: "Dealers are collecting old fertilizer accounts three and four years on the books, due to the rise in farm income." He estimates an increase of 8 to 10% in the sale of mixed fertilizers this spring.

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Others are more modest in their predictions, but are generally encouraging. "Prices for tobacco, corn and small grains all look good," a North Carolina fertilizer man declares, "and this is a factor pointing toward a possible overall rise of 5% in the sale of mixed fertilizers during the first six months of 1961.

A sampling of opinion in Virginia indicates mixed fertilizer sales will be up 4%. State farm income is expected to increase 5%. Prices of farm commodities are good. Industry people say fertilizer raw material is readily available, and they expect the manufacturing and distribution picture to be favorable. Colleges are recommending higher-analysis fertilizer which will have a long range effect in building up the industry. The 12,600 additional acres of cotton allotted to Virginia should represent additional fertilizer sales.

A Greenville, North Carolina, representative states that the bright outlook for fertilizer sales is based largely on what tobacco did in 1960. An excellent crop sold at high prices. Although corn was damaged some by storms, cash income from this crop also was above average. Peanuts, beans and other crops were fair.

An industry spokesman from Raleigh says: "Sales for the first half of the year should be at least the same tonnage for North Carolina as in 1960—about a million tons. Fall fertilizer sales were good. Excellent weather conditions permitted top-dressing of pastures, and there was plenty of small grain and grass seeding. I look for tobacco and cotton acreage to stay the same. There may be a switch from corn to soybeans on some farms and this could result in less fertilizer use. There probably will be more granular and semi-granular fertilizer grades manufactured this year."

One other North Carolina representative estimates a 5% sales increase. He thinks tobacco and corn yields last year will contribute to the farmer's welfare, but says the situation could have been better if Hurricane Donna had not damaged some crops.

Soil Fertility Program Helps

A South Carolinian reports: "Fall fertilizer usage was up, and we believe spring will see the same. The Clemson soil fertility program of soil tests and recommendations is expanding. Farmers in general have a better outlook than last year, and this will lead to increased sales for us, particularly on grain, cotton and corn."

A second spokesman from South Carolina predicts that farmers will be able to finance a good farm program this year. "They will be in the mood to increase yields through the use of more plant food," he points out.

Another report from that area forecasts an increase in spring sales of approximately 2 to 5%. The Clemson soil fertility program is again mentioned as a contributing factor.

Large numbers of new mechanical cotton pickers were purchased in South Carolina during 1960. This may contribute toward a willingness to plant a greater portion of the cotton allotment this year. The fertilizer man who makes this observation also believes the sale of mixed goods could increase as much as 10%. He cites the good yield and price of tobacco as an added supporting factor.

Still another South Carolina fertilizer man predicts total sales of 500,000 tons of mixed goods—nearly the same as the first six months of last year.

Reports from Georgia about prospects for fertilizer sales are on the encouraging side. One representative predicts a 5% increase, and says he would go higher except that some sections suffered from drought.

Some Georgia fertilizer people think tonnage will be the same this spring. Manufacturers expect no hardship from raw material availability, but they predict little manufacturing expansion.

Here is an interesting statement made during the Georgia survey: "Farmers who are surviving today must be good managers. They have learned the value of fertilizer and now represent a better market."

A comment from Florida mentions Hurricane Donna caused an erratic movement of mixed goods last fall. Nearly everyone around the state expects a better spring fertilizer season.

Up in the Mid-South, a Kentucky-Tennessee manufacturer thinks there will be a 5 to 7% sales increase. "Farmers are getting better educated on the value of higher fertilization on cash crops," he asserts. "Less mixed fertilizer may be used on pastures due to poor cattle prices, but there will be an increase in the movement of mixed goods due to new cotton acres being planted."

Eastern Predictions

Fertilizer demand should be about the same as last year in New England. The dairy farmer is a good customer. Higher nitrogen grades are gaining better acceptance.

Western Pennsylvania is looking for a smooth shipping season, which it has not enjoyed for several years. Manufacturers expect a rise in tonnages, and will use better production methods. Farm prices are good, and more plant food is being suggested through soil testing.

"Results of the past season are showing what can be done through proper fertilization," an industry representative explains, "and the general economy of the area seems to be in fine shape for the coming year."

One disturbing factor in Pennsylvania is the rapid decline of small grain acreage throughout the state. Poor prices and yields have contributed to this situation.

Delaware and Maryland Eastern Shore manufacturers look for an increase in fertilizer sales, provided weather is better than it was last spring. College recommendations have been revised with emphasis on increased use of higher-analysis fertilizers. A well-received soil fertility program was recently launched in three Southern Shore counties.

"Pasture fertilization is beginning to get a foothold in this area," according to one spokesman, "and should contribute to increased consumption."

Midwest Looks Promising

Demand for fertilizers have been flourishing in the Midwest for the past several years. There is reason to expect this market will continue to expand.

"More farmers realize the necessity of using fertilizer," declares a leading manufacturer. "They see it will make the greatest return in the shortest period of time, compared to other products they purchase for use on the farm. More bankers are realizing this, too, and they are willing to lend money for fertilizer applications."

Reports from Kansas, Nebraska, North Dakota and Minnesota seem to rank

among the most optimistic in the Midwest. Indiana and Ohio predict a more modest sales rise in the offing, with the possibility of greater increases, depending upon preplant weather.

Reasons for the overall favorable outlook in the Midwest are: (1) Higher farm income than last year, (2) better fertilizer distribution through larger numbers of small mixing plants and warehouses, (3) and greater use of bulk spreaders assigned to dealers.

Less wheat acreage last fall because of late corn harvest may mean more corn this year, a manufacturer points out. He predicts a 3 to 5% sales increase for mixed goods in Ohio and Indiana. Farmer education and acceptance of fertilizer is at an all-time high.

Additional commentary from Indianapolis substantiates this estimate, and cites the same percentage figures. Another Indiana opinion sets the figure at 4%. Factors that will favorably influence fertilizer sales, says the representative making this report, are livestock prices, continued good results with fertilizer, favorable costs for mixed goods and more local distributors who are giving better service.

An Ohio representative says the trend is just starting to plow-down more fertilizer there. "In the past, we have been selling about 80% starter fertilizer. The switch to plow-down should cause mixed goods to go up about 5 to 10% this year," he asserts.

Warehousing Improved

"Dry manufacturers are putting in more warehouses at a rapid rate," he continues. "This should aid distributors during the rush season. All manufacturers are pushing soil testing which will promote higher and heavier rates of fertilization."

A Michigan fertilizer man explains that sales should be slightly higher because: (1) Farmers harvested the largest bean crop on record, (2) beet production is down, but sugar content is up and growers enjoyed income that was as high as a year ago. He states that the economy of the area is tied closely to these two crops.

From Minnesota comes the report that this will be a better spring for fertilizer than last year, which was cold and wet. Better weather conditions should enable more corn planting at earlier dates, causing farmers to use broadcast and starter fertilizers. Pasture will probably get an extra helping of plant food this year, partly due to an increase in farm income, the report says.

Both Minnesota and North Dakota had good fall harvest weather, and this created interest among farmers about fertilizer. Their mood was favorable, and they could see results of their fertilizer applications.

North Dakota agricultural college recommendations for use of nitrogen and mixed grades have been upped. The new bulk spreaders for applying blended goods are catching on fast in this area.

Iowa and Illinois expect sales equal to last year. They may increase slightly, most manufacturers think, because crop response was favorable to fertilizer last year. Southwest Iowa reports a rise in fall movement of mixed goods. Sub-soil moisture is above average.

Nebraska claims an excellent outlook for 1961, due to good crops and fertilizer results in 1960. One industry representative says: "Fertilizer promotion has helped here. Higher analysis will be the rule, and we expect more potash will be applied."

Last fall, Kansas and Nebraska farmers harvested one of the most bountiful corn and sorghum crops in their entire history. Their good results with fertilizers will give a boost to sales this year. The industry also may see more use of fertilizer-insecticide combinations in corn rootworm areas.

Missouri fertilizer people think sales will be steady in comparison to last year.

Southern Market Analyzed

A Mississippi representative believes there will be a 5 to 10% increase in the sale of mixed fertilizers this spring. "The big reason," he explains, "is more competitive selling to farmers. This makes manufacturers work harder and actually creates more sales."

He goes on to point out that the South is getting more bulk distribution and larger applications of fertilizers are being recommended by the state colleges. "Plenty of mixed goods are available at reasonable prices, and the general outlook is good," he concludes.

Alabama farm income was high last year. Fertilizer sales this spring are expected to equal or surpass previous years.

A fertilizer man who travels Oklahoma and Texas thinks manufacturers can expect more business because of increased cotton acreage allotments. There will also be more sugar cane and sugar beet production. He says bulk spreading of fertilizer is having favorable effects in this area.

Other sample opinions from Texas and New Mexico indicate fertilizer sales might rise as much as 10 to 15%. "Soil sampling is up," according to one spokesman, "due to a good soil fertility program." He cites the bumper wheat, cotton, and grain sorghum crops last year as favorable factors. "Better college recommendations also are playing a vital role," he declares.

Western Forecasts

Manufacturers in the Rocky Mountain area anticipate a 15% increase in the sale of mixed fertilizers. The trend toward higher-analysis fertilizer is definite.

A Western representative gives the reasons behind this trend:

"For one thing," he says, "there is a lower unit cost for high-analysis mixtures. Also, small blending plants are serving the farmers in local areas with the exact plant food nutrients required. All fertilizer can be applied in one application with these mixtures.

"There are a couple of other factors that will be important next year," he went on. "There will be a 10% increase in the sugar beet acreage allotment. Higher prices and yields on all crops will encourage farmers to use more fertilizer in 1961."

A Good Spring Ahead

The fertilizer industry as a whole seems healthy and happy as it contemplates the spring season. Voices of pessimism are occasionally heard, but they are rather scattered. The cross-country survey paints a pretty clear picture of optimism for mixed fertilizer sales.

Now is the time for manufacturers to prepare for the big spring rush. Make sure you are ready to handle large volume orders when the demand for fertilizer hits! Build up your inventory, check your plant equipment and get ready to make the most of your sales opportunities.

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	CHEMICAL COMPOSITION %						PHYSICAL PROPERTIES		
	Total Nitrogen	Anhydrous Ammonia	Ammonium Nitrate	Urea	Water	Neutralizing Ammonia Per Unit of Total N (lbs.)	Approx. Sp. Grav. at 60°F	Approx. Vap. Press. at 104°F per Sq. In. Gauge	Approx. Temp. at Which Salt Begins to Crystallize °F
NITRANA®									
2	41.0	22.2	65.0	—	12.8	10.8	1.137	10	21
2M	44.0	23.8	69.8	—	6.4	10.8	1.147	18	15
3	41.0	26.3	55.5	—	18.2	12.8	1.079	17	-25
3M	44.0	28.0	60.0	—	12.0	12.7	1.083	25	-36
3MC	47.0	29.7	64.5	—	5.8	12.6	1.089	34	-30
4	37.0	16.6	66.8	—	16.6	8.9	1.184	1	56
4M	41.0	19.0	72.5	—	8.5	9.2	1.194	7	61
6	49.0	34.0	60.0	—	6.0	13.9	1.050	48	-52
7	45.0	25.3	69.2	—	5.5	11.2	1.134	22	1
URANA®									
6C	43.0	20.0	68.0	6.0	6.0	9.3	1.180	12	39
6M	44.0	22.0	66.0	6.0	6.0	10.0	1.158	17	14
10	44.4	24.5	56.0	10.0	9.5	11.0	1.114	22	-15
11	41.0	19.0	58.0	11.0	12.0	9.2	1.162	10	7
12	44.4	26.0	50.0	12.0	12.0	11.7	1.087	25	- 7
13	49.0	33.0	45.1	13.0	8.9	13.5	1.033	51	-17
DURANA*									
DURANA is a trade-mark of Allied Chemical Corporation.	37.0	13.3	53.4	15.9	9.4	7.2	1.235	0	36
U-A-S®									
A	45.4	36.8	—	32.5	30.7	16.2	0.932	57	16
B	45.3	30.6	—	43.1	26.3	13.5	0.978	48	46
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Let's be more *than* Factual . . .

by RALPH L. WEHUNT

Dr. Wehunt is a soil fertility specialist with the Test-Demonstration Branch of Tennessee Valley Authority. His present work takes him into many areas of the United States, developing plans and procedures for introducing new TVA fertilizers in educational programs.

DR. WEHUNT

Sometimes referred to as the father' of the nation's initial Intensified Soil Fertility Program, in Georgia, he helped develop this program while serving as a specialist with the state's Agricultural Extension Service. The program attracted nation-wide interest.

In constant demand as a speaker, his ability to impart his enthusiasm about fertilizers to others is well known to hundreds in the industry who have heard him talk. Getting the message of sound fertilization across by newspapers, radio, and popular articles is an educational approach at which he excels, along with his ability to prepare easy-to-understand visual aids on efficient fertilizer use.

This article deals with some of his philosophy on how to conduct educational programs. He believes that response—understanding, acceptance and willing action—is the aim of communication, and that all messages must take into account more than factual information.

The message of this article applies equally well to all who have a part in the information chain to the farmer—the fertilizer manufacturer, his salesmen and dealers as well as to the soil scientists and extension workers.

Across our great country many dedicated and hard working soil fertility specialists are urging farmers to improve their soils. But, unfortunately, a large part of this urging falls on deaf ears. Recent surveys have shown that these messages are not motivating some farmers to action.

Attempts to analyze this problem have repeatedly raised the question: Why don't our messages ring a bell —or lead farmers to action? Are our messages too complex—given in terms farmers do not understand? Are we lacking in an understanding of human nature? Are our techniques outdated in this age of modern communications? Are we too obsessed with facts to make our messages appealing? Each of us has different answers. Opinions differ. There are, however, some basic ideas which may help resolve this problem.

In influencing farmers to use new research findings on fertilizers, most of us probably fall short—not so much from a misunderstanding of human nature as from failure to use the simplest and most obvious of communication techniques.

What is our major problem—is it an obsession with facts? Scientists, of course, must be 100 per cent factual. But, facts alone will not usually motivate farmers to change their fertility practices. The basic attraction of farmers, like others, is largely involuntary; it is chiefly a factor of: present environment, past habits, old traditions.

For instance, a farmer often looks to his neighbors for assistance. And, because his neighbors use low-analysis fertilizers, inwardly he believes that he is buying the best fertilizer, and logic alone may not change his mind. Before he accepts the fact that high analysis is a better buy, his attitude must also be changed. This usually takes more than facts.

What factor is missing? Is the missing link more 'want' appeal? Facts attract attention more effectively when we relate them to basic human desires. Unless this is done, 'fact-giving' is often without avail. Farmers—like all of us—do not want facts for facts' sake. As Oliver Goldsmith so aptly put it:

Logicians have but ill defined
As rational the human kind.
Logic, they say, belongs to man,
But let them prove it if they can.

Our big opportunity is to take advantage of this knowledge. Let's relate our dim and often indifferent facts to farmer wants that are real and vivid. Let's make our fertilizer facts come alive—alive with everyday desires of farm people.

How can this be done? It's not easy! For example, we can give a farmer a bundle of facts about nitrogen. We can show him that nitrogen produces bigger yields and profits. But he is still indifferent. We have not touched his 'want' desires. Our story is too factual. It is still too unreal from his viewpoint.

Real life problems to him are: I want to beat neighbor Jones growing corn. I want to send Junior to college this fall. My wife wants a new house. Show him the connection between these 'real-life' wants and nitrogen, and our facts become real; he listens and, more importantly, goes into action by applying more nitrogen.

But most of us, subjected to several years of formal training in scientific facts, hesitate to use such motivation techniques. This is natural, and it's not easy to overcome —even when we attempt it. We are first of all scientists, not motivators of ideas.

How then can we make our ed-

ucational programs more effective? First of all, let's apply a basic rule found in any book on psychology. It's this simple: *No appeal to reason that is not also an appeal to a want can ever be effective.*

I repeat: a 'real-life' approach is not easy. It requires a great deal of planning. But it gets results—action by farmers. Our objective is accomplished. Its progress is measured in different terms: Not so many meetings, not so many radio programs, not so many leaflets passed out. Our objective is more efficient fertilizer use by farmers and, more important, changed attitudes to new fertility practices.

Also, a great deal of planning is necessary. Yes! But it, too, is a different kind of planning. Do not be too eager to unload 'pure' facts. Stop —pause—and think! Do farmers want to cover the same 'factual' ground? What are their wants? This question is very important. In fact, it's vital to a successful soil fertility educational program.

How can we make our programs more effective? Modern educational tools will help—visuals and more visuals. Let's overcome our anti-picturizer complex. Easy-to-understand visuals are not low-brow. They are effective teaching tools and will make educational programs increasingly successful.

Complex graphs and charts are not too effective, although our past training and ascetic philosophy may say they are. Several surveys have shown most farmers do not understand them. So let's use this finding in our programs. Why use something you know is not understandable? It's like a dynamo discharging into a nonconductor. The power is there, the wires are there, but the conductor is missing—no electricity is available. How like so many messages on soil fertility.

Why don't we use more visuals? Could the reason be: Easy-to-understand visuals are difficult to prepare. A good visual requires both time and deep thinking. But it's usually worth the effort—because the salient details of a complex situation can be crowded in a few square inches of space.

Too, a good visual lends a vividness that can not be experienced by the imaginative use of the other senses. To see with the eye concretely is to apprehend more of the object, and far more clearly, than to hear with the ears abstractly. But it does more! It puts the situation clearly in focus. It induces a farmer to persuade himself. Our facts are more often translated into on-the-farm action—which, after all, is our major goal.

To illustrate, suppose you want to show that bacterial action is usually greater in limed than acid soils. How do we present this fact? By words? By a chart of pH values plotted against bacterial activity? Both methods will usually fail. The subject is too abstract to discuss by words alone. A graph is usually too complex. The term pH is like a word in Latin to most farmers.

What will do the job? What will make sense? Or perhaps we might ask what concrete object can we use to more clearly define such an abstract fact? Often it pays to use an idea that may at first seem ridiculous. My own experience has made me aware that these ideas are often the best.

Add lime—it speeds up bacterial activity. What does a farmer see every day that we can use to convey this fact? What about a cake mixer? Ridiculous, you say. Maybe so. But it's concrete. Title the slide, 'Lime Stirs Bacteria.' Use a cartoon showing a cake mixer stirring bacteria in all directions as the mixer speeds up. A little accentuation and the trick is done. The farmer sees and understands.

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Such illustrations can be used for many subjects. Do not be afraid to use illustrations that seem too simple or too ridiculous to you. Your audience may be pleased.

But good visuals are not easy to prepare. Few of us were trained to express our ideas visually. Our past training was word-dominated. But let's try—even awkwardly—to convey our ideas in a form farmers can understand. I admit we may never become skilled. Our drawings may always be crude. But one thing, we can be assured they will not be dull, especially if they are drawn out of our actual seeing of what is rare and characteristic. Too, work more frequently with trained artists to illustrate complex facts.

With good visuals prepared, we are now ready to hit the speaking trail. Here again we come face-to-face with another dilemma. Is good speaking a matter of logic and mechanics, or does it require something else? Of course, good speaking requires logic and arrangement, but such speeches seldom do the job. Something is missing: Isn't effective speaking essentially a psychological process?

Our prime interest in speaking is to obtain a favorable response. The first rule, is of course, obvious: Think of your audience. What are their interests and wants? Unloading too many facts can be very boring. Here is where good visuals are effective. They are more concrete and help to keep interest high.

Keep the audience thinking. Get more 'circular response'. The audience's moods—blankness, scowls are often clues to whether people are thinking—not panting in their hard chairs, lost and confused with meaningless facts.

But don't let the audience go! The best talk, presented with excellent visuals, probably has not created enough interest for many farmers to act. Here is where the written word enters the picture. Words in a talk often fly off into the blue. Written words can be reviewed over and over again—at the reader's own speed. So pass out a written article or leaflet covering the main points.

But here again our past training enters the picture. According to surveys, far too few written messages on soil fertility rank high in readability. Our English professors, kindly souls and with good intentions, didn't say: "My good fellow, effective educational writing is essentially a psychological process." Instead they stressed, "Technique is the key—give your compositions culture." This, of course, made a lasting impression. So, most of us concluded, to be adventurous of phrases and daring of words is 'low-brow.'

Our job, however, is not 'culture' writing. Such writing, although very correct, is often a flop—it doesn't communicate—it doesn't do its real job, obtain results. Readable writing is not easy, because it is a constant process of learning the psychology of words — picture words—concrete words.

Today, we're in the middle of a language explosion. New scientific words are being created like a chain atomic reaction; grammar is being simplified, speech made more colorful. Dr. Bergen Evans, master of ceremonies of the TV show THE LAST WORD, approves. His advice to all of us: "Don't be afraid to break a few rules of grammar."

DOES THE SHOE FIT?

Two fifth-grade boys wrestled with the meaning of 'Doctor" as applied to a woman Ph.D. who had been introduced to the class.

Whispered one, "Is SHE a DOCTOR?"

'Yes," came the answer, 'but not the kind that does anybody any good."

This anecdote from a recent issue of American Potash Institute's BETTER CROPS WITH PLANT FOOD forcefully illustrates a point of Dr. Wehunt's article. Let's help our industry's doctors do the farmer some good . . . and sell more fertilizer in the process.

Verbal pretentiousness: the use of long, stilted, and unfamiliar words on fertilizers is only an annoyance to the farm reader. In fact, they are like too much fat to a girl on the beach trying to compete with the slim, trim, modern-day miss in a bikini.

Often our soil fertility terms are not communicated because farmers lack understanding or experience. Simple terms—such as plant nutrients, acid-forming, soil reaction, and unit cost—deal with concepts that farmers cannot distill out of their past experiences. To be meaningful, we must relate them to a past experience image. Walt Whitman in his SLANG OF AMERICA gives some sound advice on this subject:

Language, be it remembered, is not an abstraction of the learned nor of the dictionary makers, but it is something arising out of the words, deeds, ties, joys, affections, tastes of long generations of humanity, and has its bases broad and low, close to the ground.

Looking ahead, more and more psychology will be applied to soil fertility educational programs of tomorrow. Farming is changing rapidly, so educational methods must change too. New influences will set up different ground rules in our attitudes and beliefs. Traditions of yesterday are needed, but achievements must be a thing of tomorrow. Yesterday is gone — tomorrow is around the corner.

Today we stand on a threshold of new techniques and educational disciplines, all of which should be explored. The more complex knowledge becomes, the harder it is to teach. Such a paradox focuses more and more attention on the need to simplify, to clarify and to use concrete examples. The Greatest Teacher said: "Therefore, I speak to them in parables: because they seeing see not; and hearing they hear not, neither do they understand."

In conclusion, facts are the backbone of our educational programs—but it takes more than facts. Farmers' interests and desires must be considered too. Facts expressed in terms of better homes, education for children, and new tractors and TV sets are less likely to fall on deaf ears. They're facts expressed in 'real-life' terms and thus have meaning to farmers. Progress comes not by changing maps or plans but by changing men, their attitudes toward a better way of doing things—in our case, new and improved soil fertility practices. In other words, let's be more than factual.

9th Edition of "Official Methods" Released

The ninth edition of "Official Methods of Analysis" for such products as fertilizers, foods, food additives, drugs, cosmetics, pesticides, and feeds is now being distributed by the Association of Official Agricultural Chemists.

The book is available from the Association, Box 540, Benjamin Franklin Station, Washington 4, D. C. Its cost is $17.50.

This 832-page compilation is the primary source of methods of analysis used by the Food and Drug Administration, U. S. Department of Agriculture, and other federal and state governmental law enforcement agencies in the United States and throughout the world.

This is the sixth in a series of articles covering various aspects of the fertilizer dealer-farmer survey made by the authors.

The Effectiveness of Soil Test Programs In Fertilizer Sales

by GEORGE M. BEAL, JOE M. BOHLEN and LARRY CAMPBELL

Soil sampling-testing programs have been generally recommended as highly effective in increasing and maintaining fertilizer sales. Is the effectiveness of soil test programs really born out in practice? Some answers to this question are provided by recent cooperative studies carried out by the Iowa Agricultural Experiment Station and the Tennessee Valley Authority.

Relation of soil testing to farmer fertilizer use

A first question that might be raised is as follows, "Is there any significant relationship between soil testing on the part of the farmer and his use of fertilizer?" Data from a statewide random sample of 315 farmers farming over 40 crop acres provides a definite "yes" answers to this question. Those farmers that have had their soil tested are definitely spending more dollars for fertilizer, they are using more total pounds of NPK and they are using fertilizer more intensively on corn (more pounds of NPK per acre of corn).

Thirty-four percent of the farmers had never had their soil tested. Of the 66 percent that had at some time had their soil tested only about one-fourth had their soil tested more than twice in the last five years. However, those who soil tested every two or three years tended to spend the most for fertilizer. Those who soil tested almost every year used fertilizer more intensively on corn.

The dealer services of taking soil samples and showing the farmer how to soil sample were ranked as important services by the medium level fertilizer users. On the other hand mailing in soil samples and helping interpret soil test results were ranked as important service by a greater percentage of the high level users. Seventy-seven percent of the high volume fertilizer users ranked the dealer mailing in of soil samples as an important dealer service. Table 1 indicates that the greater the amount of fertilizer purchased by farmers the greater the probability is that the farmer is buying from a dealer offering soil testing-interpreting services.

Consistently a greater percent of the higher volume users are buying from dealers offering soil sampling-interpreting services. For example

Table 1. Percent of Farmer's Dealer Offering Each Service Analyzed by Farmers' Fertilizer Use Levels

Service	Tons of Fertilizer Used; 1956-57 Average		
	1.0-2.7 (Percent)	3.4-4.6 (Percent)	5.3-28.7 (Percent)
Takes soil samples	16	20	35
Shows how to soil sample	11	27	41
Mails in soil samples	26	53	71
Interprets soil test results	32	47	59

Data in this paper are from Iowa State University Experiment Station Project No. 1352 done in cooperation with the Agricultural Economics Branch, Division of Agricultural Relations, Tennessee Valley Authority. The project is under the co-leadership of George M. Beal and Joe M. Bohlen, professors of rural sociology, Department of Economics and Sociology, Iowa State University. Data are taken from three phases of Project No. 1352. These phases were under the supervision of assistant professor John Harp, and graduate assistants Larry Campbell and Quentin Jenkins. They were assisted by graduate assistant research team members Larry Kasperbauer, Daryl Hobbs and Richard Warren.

only 26 percent of the farmers who use from 1.0 to 2.7 tons of fertilizer are buying from dealers who mail in soil samples while 71 percent of those buying over 5.3 tons buy from dealers who mail in soil samples. Similar trends are evident for the other soil sampling-interpreting services.

Does it make any difference to the farmer whether or not dealers offer soil test services? The farmers in the sample were asked, if there were any services offered by dealers that were important enough to them (farmers) to cause them to change dealers. Sixty-nine percent replied "yes" there were certain services that were that important. Nineteen percent said "no" and the remainder stated since they did not have fertilizer dealer they "didn't know." The 69 percent who stated there were services that were important enough to them to make them change dealers were asked what services were this important. The most frequently mentioned service was soil testing, mentioned by over half of the farmers in this group.

The Dealers Offering Soil Test Programs

Table 2 presents data gathered from a statewide random sample of 118 fertilizer dealers and gives some indications of the economic characteristics of the dealers offering soil test programs.

The percent of dealers offering these services ranged from 10 percent, dealers testing in their own "labs," to 51 percent of the dealers who stated they helped farmers interpret soil test results. For all types of soil testing services the average sales volume was well above the average for all dealers. It should be noted that in all of the figures that the average figure includes all dealers, even those offering the services under consideration. Thus, if the dealers offering each of these types of services were separated from those not offering the services the differences would be much greater.

The average mark-ups (differences between purchase price and selling price) and the average gross profits were considerably higher, on the average, for the dealers offering these soil testing services than the average for all dealers. Thus, it appears that those dealers offering soil test services are not only moving larger volumes of fertilizer but are maintaining higher markups—apparently farmers are willing to pay for these types of services.

In addition, those dealers offering soil test programs had more positive attitudes toward the fertilizer business. They were more prone to see their fertilizer business as "excellent" or "having a great potential" rather than "average," "poor" or "just a sideline." The dealers offering soil test programs appeared to be less concerned about the competition in the fertilizer business—they tended to see their fertilizer competition as "weak" rather than strong. They also tended to see their fertilizer department as a "money maker in itself" rather than a "customer service" or "not a money maker."

The offering of a soil test program appears to move dealers out of a relatively passive role in relation to fertilizer sales and into a more dynamic merchandising role. Those dealers offering soil test programs had higher knowledge about fertilizer, its use, and application. They thought they should be a consultant to the farmer on fertilizer matters, rather than "just a seller of needed goods and services." To a much greater extent they thought they should help the farmer plan his fertilizer program and make fertilizer recommendations to the farmer.

Thus, it would appear that those dealers offering soil test programs are selling considerably above the average amount of fertilizer and are maintaining above average mark-ups and gross profits. They appear to be better informed about their product and its use and playing a more active merchandising and programming role with their customers.

Table 2. Selected Economic Characteristics of Dealers Offering Soil Test Programs

Service	Percent of Dealers Offering	Ave. Fert. Sales Vol.	Ave. Fert. Gross Profit	Ave. Fert. Mark-up (%)
Soil testing (own lab)	10	$61,152	$5,239	10.1
Take Soil Samples for farmers	35	$91,158	$5,987	10.7
Send in Soil Samples for farmers	49	$70,674	$5,224	10.4
Interpret Soil Test Results for farmers	51	$60,053	$4,985	9.7
Average for all dealers	....	$40,155	$4,004	9.3

The Impact of a Soil Test Program—an Example

An Iowa study of a sample of 12 dealers and 158 farmers provides some indication of the impact of a fertilizer manufacturer sponsored soil test program on dealer business and farmer use of fertilizer. This program was carried out through manufacturer sales representatives who contacted dealers on a regular basis. There were no incentives offered to the salesmen in addition to their usual basis remuneration. The major incentives offered to the dealers were training in soil testing and using soil testing as a fertilizer merchandising technique to increase fertilizer sales. In addition, if the soil test resulted in sale of the manufacturers product a discount of fifty cents a ton was allowed up to an amount that would cover the actual cost of the soil test analysis. By most standards of manufacture sponsored soil test promotional programs this program could be considered a minimum program.

As might be expected there was differential dealer acceptance and satisfaction with the soil test program as promoted by field salesman of the manufacturer. Two-thirds of the dealers contacted participated in the soil test program to at least some minimum degree—took at least 20 soil samples. All of the dealers participating in the program had carried on some type of soil sampling program previously. However, the total number of soil samples handled by dealers increased 74 percent during the year the soil test program was promoted by the manufacturer salesmen.

There follows some of the reactions of the dealers to the program:

25 percent of the dealers thought the soil test program was "fairly effective," 50 percent thought it was "effective" and 25 percent "very effective."

All the dealers thought the farmers liked the promotional soil test program.

In their evaluation of the soil test program as a promotional device 50 percent stated it was "average," 25 percent said "better than average" and 25 percent said it was "one of the best promotional devices."

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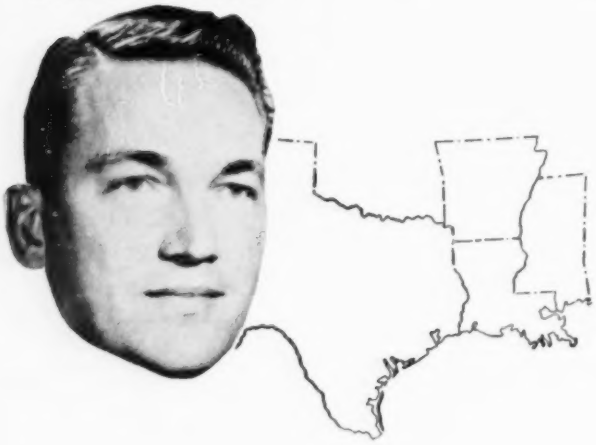

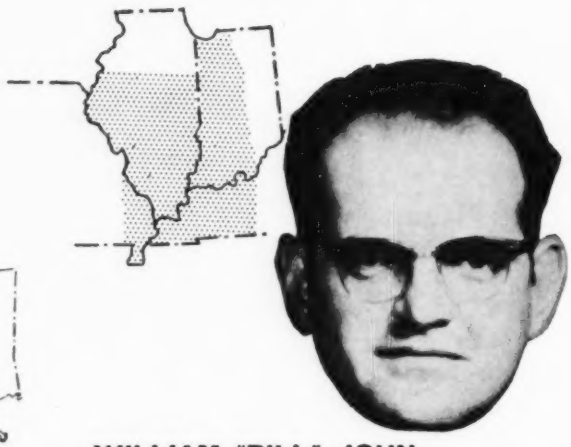

WILLIAM "BILL" JOHN
now P.C.A. Sales Representative for portions of Illinois, Indiana, Kentucky and Missouri. A graduate of the University of Missouri, he has had extensive experience in the fertilizer industry.

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These men are two of the members of the P.C.A. sales team serving the fertilizer industry. While they are on our payroll, their chief responsibility is to you. Selling potash is but part of their job; the most important part is furnishing you with whatever service and information you require . . . both have the experience and background to do the job well. The P.C.A. salesman is your man . . . make good use of him.

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Midwestern Sales Office . . . First National Bank Bldg., Peoria, Ill.
Southern Sales Office . . . Candler Building, Atlanta, Ga.

75 percent of the dealers stated that the soil test program increased their fertilizer sales. Average increased sales as a result of the program was estimated at slightly over 30 percent. Though all of the increase in sales cannot probably be attributed to the soil test program actual ferilizer sales volume for the participating dealers actually increased over 30 percent.

Half of the dealers thought the soil test program had increased the business in their other departments as well as in the fertilizer department.

All dealers planned to continue a soil test program.

It is very difficult to measure the impact of manufacturer-dealer soil test promotional program on farmer use of fertilizer. In this day of mass communication, competitive selling and situational factors effecting fertilizer use it is difficult to measure the individual influence of a specific soil test promotional program. However, recognizing these possible intervening variables, an attempt was made to measure the effectiveness of this specific soil test program.

A sample of farmers the dealers stated they had contacted regarding soil testing and who had their soil tested were compared with a random sample "control group" of farmers in the same trade areas. It should be pointed out that the random sample also included farmers, 64 percent, who had at some time had their soil tested. Thirty-eight percent had their soil tested during the year of the manufacturer-dealer soil test promotional program. Thus, the following comparisons will not be between soil testers and non soil testers but a comparison of those farmers the dealers in the manufacturer-dealer program stated they contacted with a random sample of farmers in the same trade areas.

Ninety-percent of those farmers whom the dealers stated they had influenced to have their soil tested remembered being contacted by the dealer. All of those who remembered being contacted named the dealer who was involved in the manufacturer-dealer promotional program as having contacted them. Of those who remembered being contacted by the dealers 38 percent stated the discussion with the dealer was a factor in their deciding to have their soil tested. Twenty-one percent of those contacted had never had their soil tested before. An additional 42 percent had not had their soil tested during the previous two years.

There were no significant differences in size of farm and in fertilizer knowledge between those farmers contacted by the soil test program dealers and the random sample farmers.

Seventy-six percent of those contacted through the manufacturer-dealer soil test program planned in the future to use soil testing on all their fields as a regular part of their farming operation. Only 30 percent of the random sample had similar plans. It may be pointed out again that 64 percent of the random sample had soil tested some time in the past. However, only 47 percent of the random sample *soil testers* planned to use soil tests on all their fields in the future as a regular part of their farming operations. An additional question was asked to determine how often soil testing would have to be done to be called a "regular part of farming."

A much higher percent of those contacted through the manufacturer-dealer program stated every year or every other year than did the random sample soil testers—the latter group tended to think in terms of every three to five years. Those farmers contacted through the manufacturer-dealer program were more interested in securing more information about fertilizer and fertilizer use than were the random sample farmers. In terms of types of information desired the following findings may be pertinent.

Those contacted by the soil test program were less concerned about how much fertilizer to use—this would seem logical if the soil test provided this information.

Those contacted by the soil test program were more interested, than the random sample, in all kinds of information about fertilizer (specific type of information not designated), additional information about analysis, and which type of fertilizer is the best for the money.

While neither of these farmers contacted by the soil test program or the random sample of farmers were using high amounts of fertilizer these contacted by the program were using considerably more. However, the year following the soil test program the following changes took place:

Tons of fertilizer used: These contacted in the soil test program increased their tons of fertilizer used an average of 1.09, from an average of 4.44 tons to 5.53 tons. The random sample of farmers used almost the same amount both years, 2.83 and 2.92 tons.

Intensity of use—pounds of NPK per acre of corn: Those contacted in the soil test program increased their pounds of NPK per acre 7.66 pounds from 45.53 pounds to 53.19 pounds.

The random sample of farmers increased their pounds of NPK per acre 2.55 pounds, from 30.58 to 33.13.

Summary

The data presented in this article indicate the relationship between soil testing and the amount and intensity of fertilizer use by farmers. Farmers, especially the higher level users, regard soil testing as an important dealer service. Those dealers offering soil testing as part of their fertilizer merchandising program do appear to be moving larger volumes of fertilizer and are making a greater gross profit than those dealers not offering soil testing-interpretation programs. Dealers offering these services seem to have more favorable attitudes toward their fertilizer business and are playing a more active consulting and recommendation role with their customers.

An analysis of a specific manufacturer-dealer sponsored soil test promotional program indicates that the dealers were relatively favorable toward the program, they thought it increased their sales and they were going to continue the program. Though it is difficult to attribute direct causeality, those farmers contacted through the soil test program did increase their fertilizer use considerably more than other farmers around them. Though these data can not be regarded as conclusive evidence of the effectiveness of soil test-interpreting programs they do indicate that such programs do have a real potential for increasing fertilizer sales.

INDUSTRY PEOPLE

Nitrogen Division

As the result of their establishment of four major agricultural sales regions, Allied Chemical's Nitrogen Division has announced a number of promotions; involving four new headquarters posts and four regional salesmanagers.

Matthiesen

Rogers

At headquarters: Garvin C. Matthiesen, with them 7 years, has been promoted from Midwest salesmanager to agricultural salesmanager; Thomas C. Rogers, formerly salesmanager for fertilizer materials, and with Allied for 20 years, is now product manager, fertilizer manufacturing; former Eastern salesmanager, direct application materials, George A. Kalteissen, with them since 1940, is moved up to product manager for direct application sales; Elmer Perrine, well known in fertilizer safety work nationally, on the National Safety Council executive committee and immediate past general chairman of the Fertilizer Section, has been moved up from technical service representative to director of technical service, agricultural products.

Kalteissen

Perrine

The regional salesmanagers are: Borden S. Chronister for the Northeast. He is very well known in the Southeast for his work since 1946, when he joined Nitrogen Division, in organizing educational programs. John R. Ritter, in charge of the Southeast, joined Allied in 1940. He is vice-president of the North Carolina and Virginia Plant Food Institute. Dean Keller, Central region, as salesmanager in charge of all agricultural products sales in the mid-west, with the company 13 years, has been regional salesmanager for the Nitrogen Division in that region. Homer E. Dudley, who has been Omaha district salesmanager, and has been with Allied for 5 years, is now salesmanager for the Western region.

Chronister

Ritter

Keller

Dudley

Dixie Fertilizer

Harry Barnes named plant manager of the new Dixie Fertilizer plant at Meridian, Miss., has had broad experience. He entered the industry in 1947 with Consumer Co-op and was with them at several of their plants as superintendent until 1951, when he went to Thurston Chemical, with their Atlas plant at Joplin.

In 1953 he became plant manager for Crawford Chemical, Bartlesville, Okla. and three years later was put in charge of two plants for Southwest Fertilizer & Chemical at El Paso.

V-C

Kingsley

Grassit

Virginia-Carolina Chemical Corporation has appointed Earl T. Grassit and Donald E. Kingsley assistant managers of its triple superphosphate sales department.

Mr. Grassit is responsible for triple sales west of the Mississippi River, and Mr. Kingsley east of the River.

Darling & Co.

Nelson Morris II, who joined the firm in 1946, has been elected president of Darling & Company, one of the country's largest independent rendering firms. He succeeds William H. McCausland, who has become chairman of the board.

Charles C. "Chuck" Jensen has been named general manager of the Mineral Feed and Fertilizer divisions. He joined Darling in 1949.

Darling & Company, established in 1882, manufactures animal feeds, fertilizers, fatty acids, glycerine, glue, tallows, greases, and other animal by-products. In addition to its general offices and plants (including a fertilizer unit) at Chicago, the company has fertilizer plant facilities at East St. Louis and Cairo, Ill.; Cedar Rapids, Iowa; Webb City, Mo.

Union Bag

A number of executive changes in its bag division have been announced by Union Bag-Camp Paper Corporation: Harry Recher, former director of flexible packaging sales, was named manager of bag sales; William Mellick, former director of chain store sales, was appointed director of flexible packaging sales; Frank Little continues as director of standard products sales and has been given the additional responsibility of supervising chain store sales.

Recher

Both Messrs. Mellick and Little, as well as J. J. Patterson, Jr. who continues as director of multiwall bag sales, will report to Mr. Recher.

IMC

Richard F. McFarlin has joined International Minerals & Chemical Corporation as supervisor of inorganic chemical research. He is assigned to the research laboratories at Mulberry, Florida.

Mississippi Soil Conservation

C. B. Anders, for 26 years in charge of the Mississippi Soil Conservation Service, has retired, effective December 31.

Texas Gulf

Claude O. Stephens, president of Texas Gulf Sulphur Company, has been named chief executive officer, succeeding in the latter capacity Fred M. Nelson, whose retirement as chairman was announced December 20.

Stephens

Mr. Stephens has been president since March 1957. He has spent his entire career with Texas Gulf, having joined the company in 1932 upon graduating from Louisiana State University. After service as a field engineer and later as manager of the company's Wyoming operations, he became manager of its gas department in 1951. He was elected a vice president the following year and became a director in 1956.

Mr. Nelson has been with Texas Gulf for 34 years and has served as chief executive officer since 1951, when he became president. He was named chairman in 1957 and continued as chief executive, serving almost ten years as top officer of the company.

Royster

Ross H. Walker has been appointed sales representative for F. S. Royster Guano Co., Norfolk, and will cover the West-Central portion of Alabama.

Working out of Royster's Bessemer, Ala. sales office, Mr. Walker succeeds R. W. Cobb.

C S C

Commercial Solvents Corporation has named Thomas E. Ashworth to its expanding agricultural chemical sales staff according to Loy A. Everett, sales manager for CSC's agricultural chemicals department.

Ashworth

Mr. Ashworth is assigned to the Southeastern district with headquarters at the Company's Atlanta, Georgia, office. He will travel in Florida, except the Northwestern section, and reside in Gainesville. Prior to joining CSC, Mr. Ashworth sold pesticides in the Southern states.

Armour

Several appointments in the various divisions of Armour Agricultural Chemical Company have been announced by H. Vise Miller, company vice-president and general manager of the firm's fertilizer division:

A. W. Chandler has been appointed manager of the Greensboro, N. C. division. He has been with the company since 1947, and succeeds H. H. Kemp, who is retiring.

N. D. Odom has been named assistant manager in the Memphis, Tenn., Division. He was a salesman in that division, with the company since 1954.

M. E. Stambaugh, with the company since 1947, has been named assistant manager of the Carteret, N. J. division.

S. C. Evans has been appointed assistant manager of the Baltimore, Md., division. He joined the company in 1956.

O. M. Troyer, with the company since 1953, has been appointed branch manager of the Centralia, Mo., division.

D. P. Brunetti, with them since 1957, has been appointed supervisor of specialty sales in the Carteret division.

Sulphur Institute

Dr. E. W. Bolle-Jones has been appointed to the European staff of The Sulphur Institute as assistant to the vice president. The appointment was announced by Dr. Russell Coleman, Institute president.

Bolle-Jones

Dr. Bolle-Jones, who has since 1958 been with the agricultural marketing division of Shell International Chemical Co., will assist Dr. Rene Leclercq, Institute vice president, in the development of an expanded research program in Europe dealing with the uses of sulphur and sulphur products. He joined the Institute on January 2, 1961, and will be located in its London office.

Richardson Scale

John LeMay has been appointed manager of industry development for Richardson Scale Company. In this newly-created position, Mr. LeMay will act as coordinator of sales activities within specific customer industries. He joined Richardson in 1947.

West Virginia Pulp

West Virginia Pulp and Paper Company is consolidating the sales organization on a divisional basis and launching an intensive market development program, it was announced by Victor S. Luke, division manager.

Elsas

Carnes

Jason M. Elsas and Sheldon Y. Carnes, presently managers of the division's Southern and Northern Regions respectively, have been given new responsibilities on a divisional basis.

Mr. Elsas has been appointed to the new position of sales manager for the entire division. Mr. Carnes has been named market development manager for the division.

Mr. Elsas and Mr. Carnes joined West Virginia in 1958 when the company entered the multiwall field. Mr. Elsas had been vice president of Fulton Bag and Cotton Mills in New Orleans and Mr. Carnes was vice president and general sales manager with Arkell and Smiths, Canajoharie, N. Y.

Two shifts in district sales territories were also announced by Mr. Luke. The sales office headquartered at Charlottesville, Va., has been made part of the sales district centered in Atlanta, Ga., and the Kansas City district has been combined with the Chicago district. Henry M. Howe will direct sales for the consolidated district at Atlanta and H. Lockwood Frizzell, formerly district manager in Charlottesville, will manage the expanded Chicago district.

Indiana Farm Bureau

Arthur R. Mullin, manager of the fertilizer department of the Indiana Farm Bureau Cooperative Association since 1944, retired Dec. 31, according to an announcement by the co-op board.

Melvin Leach, fertilizer production manager, who will succeed him, came to the co-op in 1935.

The Co-op operates granulating plants at Indianapolis, Columbia City, Jeffersonville and Scherrville, Ind.

—Industry People...

Gilman Paper

Howard Gilman, executive vice-president of Gilman Paper Company, announces the appointment of Malcolm Gray to the new post of manager of trade relations, effective immediately.

Mr. Gray has a strong record of service with the Gilman organization dating from 1947. His knowledge of market conditions, plant operations and experience with purchasing fits him ideally for this highly important position.

G L F

John C. Crissey, a leading figure in the fertilizer and farm chemicals industry, has retired as head of the Cooperative G.L.F. Exchange soil building division. A G.L.F. employee for 35 years, he has been division manager since 1942.

Crissey

Under his direction during the past 18 years, the division developed and expanded the G.L.F. line of farm chemicals.

Mr. Crissey is president of the board of directors of Fertilizer Manufacturing Cooperative, Baltimore, Md.; a former director of the National Plant Foods Institute; and a member of the customers advisory board for International Minerals & Chemical Corporation.

He was honored in November for his years of service to the industry at the Northeastern Fertilizer Conference in Hershey, Pa. Another citation, made earlier this year, noted his "exceptional service to G.L.F. patrons, friends and fellow employees."

Minnesota Farm Bureau

John F. Mulvehill, for the past five years fertilizer materials specialist for Minnesota Farm Bureau Service Company of St. Paul, has been promoted to sales manager of the company's fertilizer division, according to an announcement by O. J. Arlien, general sales manager.

The Minnesota Farm Bureau Service Company has fertilizer plants in Moorhead, Dodge Center, Fairmont, Benson and Clarkfield, Minnesota.

Chase Bag

George K. Whyte has been appointed to the newly created position of central regional sales director for Chase Bag Company. Prior to the promotion, Mr. Whyte was manager of the company's St. Louis sales division. In his new post he will be responsible for the Toledo, Cleveland, Detroit, Buffalo and Pittsburgh sales areas, and will make his headquarters in Toledo.

Whyte

James G. Jackson, previously sales manager for Chase in St. Louis, succeeds Mr. Whyte as manager of the St. Louis sales division.

Mr. Whyte has been with Chase since 1942. Mr. Jackson joined the company in 1947.

Smith-Douglass

President W. R. Ashburn of the Smith-Douglass Company has announced the appointment of L. H. Britain as assistant controller for the company.

Britain

In his new duties, Mr. Britain, with S-D since 1949, will be responsible for maintaining the company's primary accounting records and preparation of financial statements, reporting to Smith-Douglass controller and treasurer, S. L. Lott. He will also have direct supervision of data processing, property accounting, home office accounting, and functional supervision of field accounting matters for the company.

Ortho Division

Gordon B. Black, district manager for the Ortho Division of the California Chemical Company in Southern California, recently announced the appointment of Donald D. Lake as a sales representative for the firm. Mr. Lake has been with Ortho for two and a half years.

R. C. Yapp, district manager for the Ortho Division of California Chemical Company in Des Moines, Iowa, has announced appointment of John R. Bigger of Belvidere, Illinois, as a sales representative for the firm. Mr. Bigger was formerly an agronomist with the Boone Soil Service Company.

U. S. Borax

Appointment of James I. McFaul as controller of United States Borax & Chemical Corporation is announced by R. F. Steel, vice president in charge of the administrative department.

Mr. McFaul formerly was assistant controller of Title Insurance and Trust Company of Los Angeles.

Bemis

Three appointments within the sales operations of the Bemis Bro. Bag Company were announced by C. W. Akin, executive vice-president:

Finlay

Tull

George W. Finlay, who joined Bemis in 1946, has been named manager of the Wichita bag plant and sales division and has been succeeded as supervisor for multiwall bag sales in the company's general sales department in St. Louis by U. A. Tull. The latter's post as sales manager of the Memphis sales division has been filled by Donald H. Woodmansee, Jr.

Woodmansee

Mulhern

Mr. Finlay will assume his new position February 28, 1961, upon the retirement of the present plant manager, M. E. Ocker.

Andrew J. Mulhern who joined Bemis in 1926, has been named to succeed Erik A. Johnson as general traffic manager for the Bemis Bro. Bag Company, it was announced by H. V. Howes, director of sales.

Mr. Johnson, who has been with the company for 40 years, has served as general traffic manager since September, 1948. He will retire on January 31.

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Phosphate Rock—Ground and Unground
Triple Superphosphate

Ample, modern facilities are essential to provide the high standards of service which are the rule at Swift's Phosphate Center.

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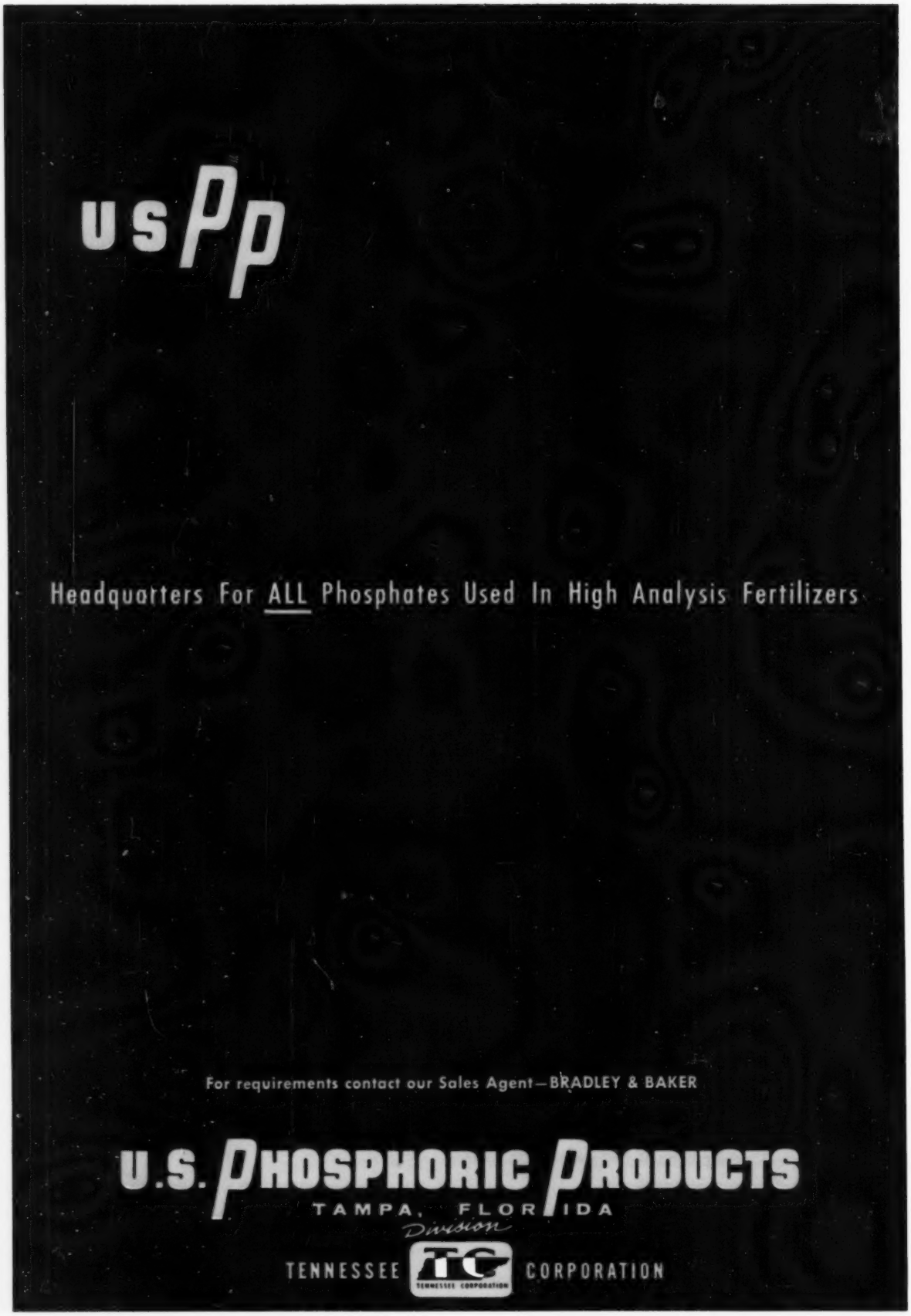
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TAMPA, FLORIDA
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TENNESSEE TC CORPORATION

CHANGES

PCA Moving Office, Announces Promotions

The Potash Company of America has announced the removal of its general sales office from Washington to New York City on February 1. After ten years in Washington the office is returning to New York in order to provide better service for customers.

The office will be located in Suite 1718, 630 Fifth Avenue, New York 20, N. Y., in the International Building, Rockefeller Center. The new telephone number will be LT. 1-1240, and new telex number will be NY 1-5386.

On the same date the following organizational changes will be made in their sales department:

Mell

Kennedy

J. Robert Mell will become assistant general sales manager, responsible for sales in the southern half of the country. He joined P.C.A. in 1946 as a sales representative in the Atlanta office, and moved to Washington as administrative assistant in 1957.

Frank H. Kennedy will become assistant general sales manager, responsible for sales in the northern half of the country. He joined P.C.A. in 1950 at Peoria, Illinois, as a sales representative. In 1957 he was made midwestern sales manager and has served in that capacity until the present time.

Lenhart

Smith

Robert B. Lenhart will become midwestern sales manager, the position formerly held by Mr. Kennedy, and will operate out of the Peoria office. He joined P.C.A. in 1957 as northeastern sales representative after many years of varied experience in the fertilizer industry. During his service with P.C.A. he has held several executive positions in state fertilizer organizations in his territory.

F. Edward Smith, Jr. will take over the northeastern sales territory, an area which he first served in 1938. In 1956 he went to the Washington office as administrative assistant. Mr. Smith will continue to live in the Baltimore-Washington area.

The changes were announced by Dean R. Gidney, P.C.A. vice president.

Imperial Into Farm Bureau

The 50-year-old Imperial Chemical Co., Shenandoah, Ia., manufacturer of weed control chemicals, has been purchased by the Farm Bureau Service Co. and plans are under way for expansion of the operation. It is the Farm Bureau's first weed control plant and will serve farmers in six states. George Zachert will continue as plant manager and Robert Jensen of Des Moines will represent the new owner.

Beckman Opens Boston Office

The Scientific and Process Instruments division of Beckman Instruments, Inc., has opened a Boston sales office in Cambridge. The address of the new office is:

Beckman Instruments, Inc., 12 Norfolk Street, Cambridge 39, Massachusetts, Telephone: ELiot 4-5999.

The Boston Sales Office in Cambridge is staffed by Robert Sankey, sales engineer for the firm's scientific analytical instruments, and Robert Stillman, service engineer.

IMC Puerto Rico Office

International Minerals & Chemical, S. A., has begun operation of its new overseas sales office in Puerto Rico. The company is a subsidiary of International Minerals & Chemical Corporation, Skokie, Illinois.

The new office, to be located in Santurce, just outside San Juan, will serve as headquarters for IMC's sales to a wide range of industries in Latin America and the Far East.

Luis Vergne, a native of Puerto Rico, will head the office as managing director.

New Cyanamid Regions

E. H. Smythe, marketing director for the agricultural division of American Cyanamid Company, has announced the formation of two new sales regions. Effective January 1, 1961, the present midwest region will be divided into the west central region and the east central region.

The west central region will be comprised of the states of Nebraska, North Dakota, South Dakota, Minnesota, Iowa and Wisconsin and will have its headquarters in Minneapolis. L. P. Zapalac will be the regional manager. District managers reporting to Mr. Zapalac will be John Reynolds, A. M. Brown and Mort McDonald.

States making up the new east central region are Illinois, Indiana, Michigan, Ohio and Kentucky. The east central region will headquarter in Chicago, and Dr. M. J. Harvey will be the regional manager. Assisting Dr. Harvey as district managers are T. J. Montgomery, E. E. Papizan, F. W. Overton and Don Lee.

Bioferm Joins IMC

Bioferm Corporation, a leader in research, development and production in the microbiological fermentation field, will become a part of International Minerals & Chemical Corporation, officials of the companies announced last month.

T. M. Ware, president of IMC, said the move would "widen IMC's activities in the fermentation field, provide new opportunities in the agricultural market through insecticides and feed supplements, and open completely new avenues of diversification."

George Gelman, Bioferm president, said the two companies "will mesh together naturally and well, with mutual benefits."

Officials of the two companies said that final terms of the stock transaction agreement by which IMC will acquire Bioferm are still being worked out, but that negotiations are expected to be completed by the end of the year. Bioferm is owned jointly by George Gelman and Jerry M. Sudarsky, executive vice president and treasurer.

Bioferm's plant in Wasco, California, will continue without change as an operating unit under the Bioferm name, according to George B. Hamilton, vice president of IMC's Amino Division, of which Bioferm will be a part.

—Changes...

Best Hawaiian Company

Lowell W. Berry, president of the Best Chemicals and Fertilizers Co., Ltd. of Hawaii has announced the opening of their new headquarters offices for the Hawaiian operation at 646 Pohukaina Street in Honolulu.

The Hawaiian corporation is a subsidiary of the Best Fertilizers Co. of California which manufactures anhydrous ammonia, sulfuric acid, phosphoric acid, ammonium sulfate and ammonium phosphate pelleted fertilizers. John Clark, a native of Hawaii, has been appointed vice president and general manager of the company.

International Ore & Fertilizer

International Ore & Fertilizer Corp. has taken over the entire 29th Floor at 500 Fifth Ave., New York 36, N. Y. This sharply increases the space formerly occupied by this company in the same building.

Missouri Co-Op Name Change

Fred Heinkel, president of Missouri Farmers Association, disclosed recently that MFA directors have given some thought to changing the name to Mid-Continent Farmers Association. MFA does business in several states, as does its insurance affiliate.

AP&C Moves Atlanta Offices

American Potash and Chemical Corp. has moved its Atlanta, Ga. offices to a new location. Included in the move are both the Southern Area regional office and the Atlanta district office. The regional office, with William W. Young as manager, supervises the Atlanta and Shreveport, La. district offices. C. L. Straughn is manager of the Atlanta district office.

Both offices are now located at 3330 Peachtree Rd., N.E., Suite 344, Atlanta 5, Ga. The new telephone is 231-3330.

Caribbean Chemical-Facerform

Caribbean Chemical & Fertilizer Company has secured an exclusive right to the licensing of Facerform patented processes in the Asian area. The area extends from Turkey on the west through Japan on the east. Oceania is not included within the licensing area.

The Facerform processes are concerned with the solubilization of phosphate in rock and the production of pelleted by coating fertilizer containing the phosphate portion only or those in which nitrogen, potash and other fertilizing elements may be incorporated.

Harry R. Shawk is president of Caribbean Chemical, with headquarters at 363 Edgewater Dr., Dunedin, Fla.

New Consulting Service

Growing need by the industry for broad, accurate advice and assistance in specific phases of business operation has led to the formation of a new consulting service, Agricultural Marketing Services, in Glenview, Illinois.

Dr. Roger W. Roth, senior consultant, states that confidential, personal assistance is offered to agricultural chemical manufacturers in a wide variety of areas including: Acquisition searches, market surveys, product planning, evaluation and introduction of new products, distribution appraisals, promotion and merchandising, personnel and public relations, product liabilities claims, personnel selection and training, and assistance with Federal and State regulatory problems.

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Liquid fertilizers are booming. In the past two years alone, manufacturing plants have doubled and retailers report sales as high as 100 tons of liquid to every ton of dry!

When you sell liquid fertilizers you offer the farmers in your area greater speed, uniformity, and accuracy of application, lower cost of application per acre, and increased flexibility of application.

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Get your share of this growing business by offering your customers a complete one-stop fertilizer source. We can furnish you with all the equipment you need, help you establish sources of supply, work with you to get your liquid fertilizer business started.

No matter what size operation you plan, Tryco can serve you with a more complete line of equipment and supplies than any other company. You'll find Tryco the ideal one-stop source for every need . . . from storage tanks or nurse tanks to transfer pumps, fibreglass tanks, hose, and nozzles.

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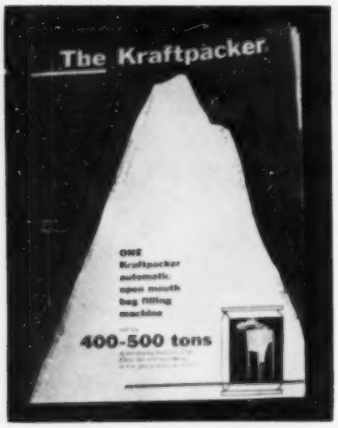
Some formulations of ratios in higher analysis grades using DAVISON 16-48-0

Ratio Analysis	Pounds of Material Required			
	16-48-0	Ammo. Sul. (21%N)	Triple (46%APA)	Potash (60%K2O)
1-1-1 14.4-14.4-14.4	602	917		481
1-2-2 11-22-22	917	349		734
1-4-2 8.5-34-17	1063		370	567
1-4-4 6.6-26.5-26.5	828		290	882

**Other higher analysis nitrogen materials (urea and ammonium nitrate) may be substituted in above formulations.*
Analysis in the more popular ratios, such as 12-12-12, 10-20-20, 6-24-12, 5-20-20, can be manufactured by the addition of granular dolomitic limestone or other materials.



Open-mouth Bag Packer

Kraft Bag Corporation, multiwall bag manufacturing subsidiary of Gilman Paper Company, has just issued a new, colorful 8-page brochure on 'The Kraftpacker' automatic open mouth bag filling machine for which the Company is exclusive sales agent. The Kraftpacker's strongest claim is that it will bag 400 to 500 tons of free-flowing materials in an 8-hour day, with an accuracy of 4 oz. plus or minus per 100 lbs.

This brochure combines Kraftpacker facts with photographic proof of its efficiency in operation. There are actual installation shots in packaging fertilizers, chemicals, feeds, and specialty products. Also illustrated are the Portable Kraftpacker and the Double-Duty Twin-Scale Kraftpacker. The brochure includes information concerning Kraft Bag Corporation's new 300,000 sq. ft. plant addition for the manufacture of multiwall bags.

For copy of this Kraftpacker brochure, circle number 1 on CF's Information Service card, page 39.

New Fertilizer Pump

A newly perfected pump for abrasive or corrosive liquids or slurries at moderate pressures is now available from Hydro-Dynamics Research Industries. The new line of pumps are of the diaphragm type and have the advantages of long trouble-free life, reduced down-time and maintenance costs, quick repair in the field or in the plant, and built-in pressure regulation. Key design feature of the new pumps is that the liquid being pumped is completely isolated and sealed off, and never comes into contact with the mechanical parts of the pump. Durability tests on comparative pumps show that this new diaphragm pump will pump abrasive or corrosive solutions or slurries from 3 to 5 times as long as other types of pumps used on similar applications, yet cost of the pump is not much more.

The diaphragm material is made of either nylon or synthetic rubber and forms the partition wall between the pumping and bearing chambers. Housing materials are available in cast iron, Ni-Resist, or aluminum.

For further information, circle number 2 on CF's Information Service card, page 39.

FREE LITERATURE ON EQUIPMENT MATERIALS AND SUPPLIES

Liquid Applicator Brochure

A complete selection of liquid fertilizer applicators is described and illustrated in a new brochure produced by Tryco Manufacturing Company.

Complete information is given on pump type, air pressure type, and metering pump applicators, along with recommendations for the kind of solutions each is best suited to handle.

Separate sections cover spray boom and tool bar assemblies, as well as new fiberglass tanks which eliminate the problems of rust, corrosion, and maintenance experienced with steel containers.

Several new features of the complete Tryco line for 1961 are introduced. Notable among these is a unique P.T.O. tumbling rod drive kit which enables pumps or air compressors to be mounted directly on the applicator trailer instead of on the tractor.

For a free copy of this new brochure circle number 3 on CF's Information Service card, page 39.

Exhaust Purifier Booklet

Catalyst exhaust purifier case histories showing different applications for this fume reducing device are described in a new four-page booklet now available from Oxy-Catalyst, Inc.

The booklet features eleven problem solution case histories of typical Oxy-Catalyst exhaust purifier installations on industrial vehicles. The illustrations show the catalyst purifier installed on gasoline and LP gas lift trucks, power sweepers and diesel shovel loaders. It describes how in each incident carbon monoxide, cancer suspect hydrocarbons and other exhaust fume problems were solved by the use of the purifier.

This free booklet 'Clean Up Your exhaust Fumes with Oxy-Catalyst Exhaust Purifiers,' is available by circling number 4 on CF's Information Service card, page 39.

Sulfuric Acid Brochure

The new edition of the technical brochure on sulfuric acid by Allied Chemical's General Chemical Division features enthalpy curves which, for the first time, enable sulfuric users to calculate heat developed and final temperatures when acid is diluted with water.

Profusely-illustrated 40-page data book includes the latest information on uses, manufacture, properties, storage, handling and methods of analysis. Charts have been revised for easier reference. Copies may be obtained by circling number 5 on CF's Information Service card, page 39.

Precision Spray Nozzles

A new line of precision spray nozzles for liquid fertilizers has just been released by Associated Precision Industries. The new nozzles are available in a wide range of standard nozzles in brass, monel, steel, stainless steel, hard rubber, and Teflon and in a variety of spray patterns of hollow cone, hollow cone wide angle spray, solid cone, flat spray, extra wide angle spray, and adjustable flat spray. Standard nozzles are manufactured in a wide range of orifice diameters from .010" to .546" and in a selection of spray angles of 0, 15, 25, 40, 50, 65, 70, 80, 90, 160, and 180 degrees and in pipe sizes from ⅛" NPT. to 1" NPT. in both female and male connections.

For full details, circle number 6 on CF's Information Service card, page 39.

Nylon-Tough Belting

Use of oriented nylon strip both to strengthen conveyor belting and greatly extend its life has been announced by the Goodall Rubber Company. More than a year of testing indicates that in extremely rugged applications the new belt can outwear previously accepted belts by from 50 to more than 100 per cent and requires much less maintenance.

A core layer of nylon strip, oriented to give it exceptional tensile strength and minimum residual elongation or 'stretchability,' was developed in conjunction with Spencer Chemical Company, and Moldings & Extrusions, Inc.

Attractive feature of the new belt is that it requires a minimum of maintenance. While the orientation process gives the nylon high impact resistance, it also removes most of its ability to elongate; impact widening was also practically eliminated. The flex strength which the nylon strip imparts to the belt is said to enable it to hug pulleys with minimum slippage.

Nylon strip-reinforced belts are expected to be most widely accepted in 'Class 1' applications where conditions of extremely severe service and comparatively short belt life prevail. The new construction should also be adaptable to other applications, particularly where 'wicking' of chemicals has been destructive to a belt's core material.

For further information, circle number 7 on CF's Information Service card, page 39.

50-Foot-Swath Spreader

Belt Corporation's 'Brod-Kastor' is a machine designed to spread pelleted and granular fertilizers evenly and fast. The 'Series 500' attaches to any tractor, permitting distribution of fertilizer under conditions that would not allow a truck to get on the field, and without soil compaction. Outstanding features are the wide, fast coverage achieved because the fertilizer is spread in extremely uniform swaths 50 feet wide. Edges of the distribution pattern blend, avoiding 'skips' and 'burns.' The easily-loaded hopper holds over 1800 pounds of 60 lb. per cubic foot material, requiring fewer refilling stops. An exclusive vibrating hopper bottom insures a constant, steady flow of fertilizer, reduces stoppages, and allows easy hopper cleaning.

To allow for simultaneous seeding and fertilizing, seeding attachment is equipped with an agitator and separate adjustment valve for accurate flow.

Literature on the 'Brod-Kastor' is available by circling number 8 on CF's Information Service card, page 39.

Pump Engineering Manual

Marlow Pumps' new Engineering Manual (EM - 60) contains information gathered from many sources: various manufacturers' data, engineering handbooks, practical experience, and laboratory tests. This manual contains twenty-four pages of indexed information, charts, and graphs, to make it the most comprehensive engineering manual available from a pump manufacturer.

Most of the information contained in this engineering manual has never been readily available from any one source up until now, and should help in quickly finding answers for questions regarding pump selection, installation, and application.

For your free copy circle number 9 on CF's Information Service card, page 39.

New Flexible Tank Liners

Flexi-Liner Company has announced production of their product would be made with a built-in cold weather factor for winter deliveries.

The new co-polymer material would be flexible at temperatures as low as —40°F.

In addition to the new built-in quality, future Flexi-Liners will be ⅓ thicker than in the past. The new thickness is designed to withstand the abrasion of wet phosphoric acid precipitates without injury to the liner. Its abrasion resistance is reported to be five times that of flexible sheet materials made out of polyvinyl chloride or polyethylene.

For further details, circle number 10 on CF's Information Service card, page 39.

Trouble-Shooter Publication

Southwestern Engineering Company has announced publication of a series of case histories showing how screening problems in the chemical and other process industries can be solved with the company's Vibro-Energy Separator.

Screening data describes how processors have increased production rates, improved separation efficiency, reduced operating costs and upgraded their products.

In addition to chemical screening data, the latest 'Sweco' Separator Catalog is available by circling number 11 on CF's Information Service card, page 39.

Resolite Structural Panels

This 8-page, 2-color, 8½ x 11 booklet describes in detail the advantages as well as applications featuring Resolite's new CR Panels, a corrosion resisting material for application in chemical environments. The material itself has special characteristics which resist attack of many severe chemical environments. An accurate list of these chemicals, which includes many materials encountered in fertilizer manufacture, is shown in the brochure.

For a free copy, circle number 12 on CF's Information Service card, page 39.

Small-Capacity 'Pulver-Mill'

Sturtevant Pulver-Mill, an impact mill with integral air classifier, introduced as a 5000-lb.-an-hour unit in 1959, is now available for small-quantity grinding of soft and medium-hard materials.

Introduction of a 15-inch, 25-horsepower impact mill capable of producing in the hundreds-of-pounds-an-hour range—up to a ton and a quarter—marks the secondary addition to the line since the mill was introduced 18 months ago. Just 12 months after introduction of the original mill, Sturtevant announced availability of mills crushing up to 15,000 lbs. hourly.

The smaller, up-to-15-CWTs-an-hour impact mill, like the 50 and 150 CWT Pulver Mills, offers patented double-impactor grinding; exclusive deflector wall construction to 'bounce' partially-ground material back into the grinding zone while further speeding the pulverization process; and adjustable air classification, thus allowing precise end-product selection.

For further information, circle number 13 on CF's Information Service card, page 39.

pH Meter Bulletin

Model N pH Meters are described in a new bulletin published by the Scientific and Process Instruments Division of Beckman Instruments.

Model N is a sturdy, portable instrument which measures over the full 0 to 14 pH range or makes millivolt measurements from 0 to ± 420 mv. Readings are accurate to 0.1 pH, and repeatable to 0.03 pH.

The instrument comes in two styles to meet varying demands of users. N-1 is designed for plant and

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laboratory use where portability is secondary in importance. N-2, made especially for field use, is a self-contained pH laboratory with all the necessary supplies and equipment stored in a fitted cover for on-the-spot measurements.

For Bulletin 720-C on the Model N pH meters, circle number 14 on CF's Information Service card, page 39.

No-Spill 'Payloader' Buckets

To help solve problems in spillage of bulk materials during transportation within the plant, Frank G. Hough Co. has announced that their HA, H-25 and HAH rubber-tired tractor-shovel models with 2,000, 2,-500 and 3,000-pound operating capacities are now available with new 'No-Spill' bucket devices.

The side sheets of these new buckets are curved to conform to an arc traveled by a combination strikerbar-spillguard. The device hydraulically moves through this arc from the top side of the back of the bucket to the front and strikes off excess material which has been scooped into the bucket from the pile.

The strikerbar then remains at the front as the bucket is rolled back and lifted to carry position. During travel, the device becomes a front spillguard in this same position and acts as a load retainer.

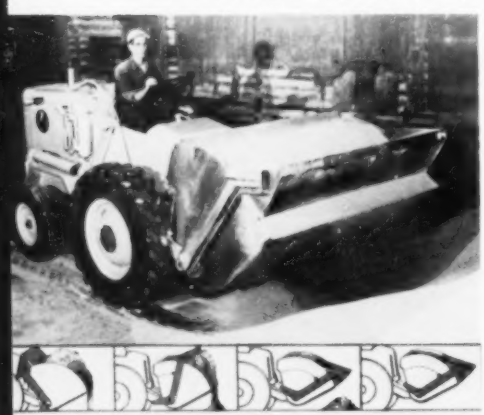
At the end of the travel cycle, the device is retracted to its original position and the load dumped in normal fashion.

Another feature of the new device is the uniform loads which can be obtained. The higher bucket side sheets eliminate any lateral 'angle of repose' of the load, and spillage is eliminated from front and back as well as both sides of the bucket.

The combination strikerbar-spillguard is actuated hydraulically. The lever for operating this device is located behind regular valve control levers in the operator's compartment.

The hydraulic system is designed in such a manner that both bucket and strikerbar operations can be handled separately.

For additional information on the HA, H-25 or HAH 'Payloader' machines equipped with 'No-Spill' buckets, circle number 15 on CF's Information Service card, page 39.



Spray For Burns

An important new addition to safety kits for industry and business is the new G-63, a fast acting, effective aerosol spray for burns that

could outdate and outmode other methods of providing first aid.

Packaged for industry in 8-ounce spray-on cans, G-63 coats the skin instantly with a protective and invisible film that not only isolates the burn but speeds the healing process and provides immediately effective relief from pain. G-63's protective film eliminates the need for bandages, as well. It reduces swelling, and guards against secondary infection with hexachlorophene. Its pain-reducing agent is an analgesic agent.

For additional information, circle number 16 on CF's Information Service card, page 39.

Triple Beam Balance

The 'Dec-O-Gram', a new high-form heavy duty triple beam balance, has been introduced by Ohaus Scale Corporation. High capacity, fine sensitivity, and sturdy construction highlight this newest addition to the Ohaus line. The 2610 gram capacity, higher than any balance in its class, is attained by the use of attachment weights which store in the base and are included with each balance. Beam capacity is 610 gram and sensitivity is 50 milligram. It is similar in appearance to the popular Ohaus Cent-O-Gram balance.

The 6" diameter removable pan, pan bow and tiered graduated beams are stainless steel for maximum corrosion protection. All other parts are protected by a long lasting baked epoxy paint. The high-strength box-end beam has recessed balance adjustment nuts and specially heat-treated precision ground knives. Among the many features of this new balance are graduated end-reading device, sliding type poise which eliminates troublesome secondary oscillations, dust-proof bearing covers and self-aligning bearings. It is equipped with a movable beaker support platform and a supporting hook for use in specific gravity determinations.

The base has a spirit level and adjustable leveling feet. The center beam is graduated to 500 grams in 100 gram divisions, the rear beam to 100 grams in 10 gram divisions, and the front beam to 10 grams in 0.1 gram divisions. An avoirdupois model is also available with a capacity of 5 pounds 2 ounces. Overall dimensions are 14½" long by 6" wide by 15" high. Model 3600 is in the metric system and Model 3601 is in the avoirdupois system.

For free bulletin and additional information, circle number 17 on CF's Information Service card, page 39.

Fast pH Meter for Lab

Zeromatic pH Meter, a line-operated, drift-free instrument for making precise pH or millivolt measurements, is described in a new bulletin published by the Scientific and Process Instruments Division of Beckman Instruments.

The Zeromatic, designed for use in any laboratory where fast, accurate pH measurements of liquids, pastes, or semi-solids are required,

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measures over the full 0 to 14 pH range and offers direct millivolt readings to ± 1400 mv.

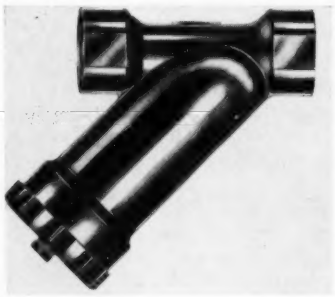
The instrument, featuring simply-operated push-button controls, also incorporates a unique standby circuit which eliminates the need for warm-up between measurements. The standby circuit also disconnects the glass electrode from the input, preventing polarization of the electrode.

For further information on the Beckman Zeromatic pH Meter, circle number 18 on CF's Information Service card, page 39.

New Nylon Strainer

Delavan Manufacturing Company has announced the introduction of a new ¾" and 1" FPT nylon strainer.

The strainer is offered in 20, 40, and 80 mesh screens with more than



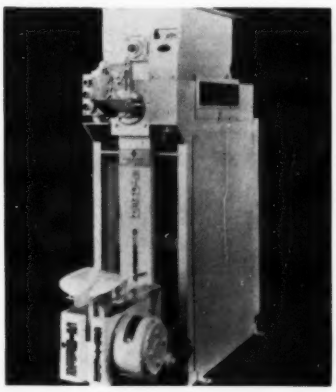
22 square inches of screen area. It is especially designed for high capacity and corrosion ressistance. This strainer offers many features needed in the operation of both fertilizers and other agricultural chemicals.

Catalog 2-5-1 contains full information on the new strainer. For a free copy, circle number 19 on CF's Information Service card, page 39.

Electronic-accuracy Packer

A new concept in ease and accuracy of materials packing is claimed for the electronic weight control system of H. L. Stoker Company's 'DX' Packer.

The new packer packages powdered, pelleted or flaked materials in valve or open-mouth bags and drums. The new true-scale beam features a 100-to-1 scale leverage



which provides sensitivity of as little as ¼ ounce actuation of an electronic sensing capacitor. It functions without direct electrical connection or sparking.

Offering repeatable accuracy in packaging a wide range of materials under varying conditions, the 'DX' also provides quick interchangeability of hoppers and feed systems; the delivery screw may be changed without tools in one minute to accommodate a variety of materials.

An over-under weight indicator, located beside the bag spout, allows checking or trimming the pack by the turn of a knob; this is possible without requiring adjustment of the poise weight. Among the available accessories are: automatic starting, interchangeable hoppers, interchangeable delivery screws, special settlers which do not affect the scale mechanism, caster lifts for mobility and attachment for various bag and drum mouths.

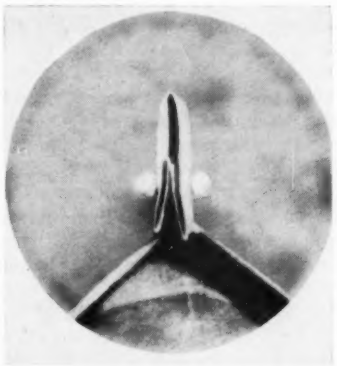
Full details are illustrated in a two-color 6-page brochure available free by circling number 20 on CF's Information Service card, page 39.

High-Impact Tape Closure

A four-ply kraft tape closure called 'ImpacTape,' which doubles the impact resistance of sewn-end multiwall bags, has been developed by West Virginia Pulp and Paper Company, which has applied for a patent on the new closure.

The new closure tape minimizes bag breakage at the sewing line, which accounts for 70 per cent of all sewn multiwall bag failures.

The ImpacTape closure consists of a piece of kraft tape, the edges



of which have been folded under the sewing line with the needle passing through four layers of the tape, instead of two layers as in the conventional closure.

The double-duty sewn tape provides a minimum of twice the impact resistance of standard sewn closures. In addition to the strength imparted by the four sewn tape plies, the inward fold of the tape further cushions the sewing line against sudden shock.

Development of the new tape closure stemmed from intensive studies of bag breakage carried out when the company introduced Clupak extensible paper as a new material for multiwall bags.

The company's laboratory found that even when tensile readings are high, breakage at the sewn ends can occur—for, while the tensile of a sewn end normally varies less than 10%, its ability to absorb shock can vary up to 200%.

The packaging laboratory worked out a method of using the Impact Resistance Tester to register toughness of a sewn end by duplicating the shocks met under field conditions.

Testing with this device, and studies of the results, pinpointed the problem and came up with ImpacTape as a solution.

ImpacTape is now available on all closures made in West Virginia's bag plants. Testing of new modification equipment is now in the final stages; this equipment will make it possible for customers to apply ImpacTape to sewn open mouth bags after filling.

Further information about ImpacTape through Bulletin 350 describing application of ImpacTape on sewn open mouth bags, and Bulletin 351 for application on sewn valve bags, circle number 21 on CF's Information Service card, page 39.

Nitrogen Materials Specifications

The Petrochemical Sales Division of Texaco Inc. has just issued a new specification sheet covering its line of nitrogen products for fertilizer manufacture.

Given in detail on the easy-to-follow chart are typical properties for their nitrogen solutions and ammonia. Nine ammonia-Ammonium nitrate solutions and six ammonia-ammonium nitrate-urea solutions are covered in the carefully-organized letter-size chart.

Properties are also given for the company's anhydrous ammonia, and 50% and 29.4% aqua ammonia.

For your free copy of this useful chart, circle number 22 on CF's Information Service card, page 39.

Plowdown Ammonia Study

An illustrated four-page report covers studies on plowdown application of anhydrous ammonia made by the Agricultural Engineering Department, University of Illinois. The research, sponsored by Texaco Inc., covered various techniques of moldboard plow application, and demonstrated that losses were insignificant when the ammonia was applied properly.

Losses are graphed by application depth and by length and lateral position of release hose. Rate of loss after application is analyzed and pattern of distribution is charted in relation to these variable factors.

For a copy of Texaco Tech Tip number 1, circle number 23 on CF's Information Service card, page 39.

Around the Map

CALIFORNIA

California Rock & Quarry Enterprises, Inc., San Clemente, are planning to move about April into larger quarters. Their field has been principally home and garden specialties. In the new quarters they plan to expand into bulk and custom mixes. The president is Louis J. Haffner.

* * *

Leon's Horticulture Specialties Corp., Glendale, has introduced two new soluble 'Vita-Brick' formulations for garden-hose application. Formula 'A' is 20-15-10 and formula 'B' is 15-8-12; both contain minor elements. Formulation includes urea, diammonium phosphate, muriate of potash, sodium, calcium and magnesium. The 'bricks' are compressed into hollow cylinders sized to dissolve after seven minutes exposure to water in the plastic dispenser. Owner Leon Blasczyk reports industry sales going well, and is setting up distribution channels.

FLORIDA

Smith-Douglass' Tenorac mine is the site of expansion in their phosphate flotation pilot plant, as the second step in a complete changeover to the new Hollingsworth-Sapp process.

The H-S process was revealed to the industry only last September after Smith-Douglass had completed an intensive pilot plant study, which climaxed 10 years of work by the two men for whom the process is named: Clint Hollingsworth, director of research; B. L. Sapp, research technician. Research supervisor, Jack Snyder, was influential in the development of the process, and operation of the pilot plant, in which was installed commercial-sized equipment from the beginning.

Wellman-Lord Engineering, Lakeland, which engineered and built the original pilot plant and the expansion, has been designated exclusive licensee, nationally, for the new flotation process. The essential heart of the new process is the Hollingsworth flotation cell which makes it possible to economically reverse the procedure now employed in the Florida phosphate field. In the new process silica is floated first, followed by the phosphate float. This eliminates the costly de-oiling and sizing operations normally required.

The pilot plant study determined several advantages of the new system over existing processes in the phosphate industry. They are: up to 95 percent recovery of phosphate from the rock (as compared to about 85 percent for others); up to 30 percent savings in initial investment for major equipment; 20 percent savings in operating costs; reduction of physical plant space requirements; and lower maintenance costs.

Development of the new system was accomplished in research laboratories at Smith-Douglass' Florida headquarters near Plant City.

* * *

Fairfield of Florida Agricultural Slag Corp. has built a plant at Davenport which is said to make the first practical use of open hearth slag from the steel works of Tennessee Coal & Iron, Birmingham, Ala.—except such of it as TCI itself has pulverized and sold as a soil conditioner.

It is said that the reason TCI is the only steel concern in the US to make use of its slag is that Alabama ore contains trace elements not found elsewhere, some of which must be removed in the steel-making process.

The Davenport plant, owned by Wilmer McCutcheon, president and Sam Killebrew, secretary-treasurer, has a slag-grinding capacity of about 125 daily tons, and is a completely push-button operation. The owners hope to double the output during 1961, and sell it, in addition to fertilizer manufacturers as an ingredient, to home owners, golf courses and parks.

Florida-Georgia Industries, Lake City, has installed a liquid fertilizer plant, furnished by Standard Steel Manufacturing Co., Indianapolis. A. G. Paul, Jr., is president of the firm, which has distributed liquid nitrogen at Lake City, Ocala and Alachula, and expects soon to set up a terminal at Madison.

* * *

Mid-Florida Fertilizer Company, Inc. is the name of a new organization which has taken over the old MAC Fertilizer Co. plant at Winter Garden. Abe Meer is president of the new firm; Carl Johnson is plant superintendent and Harry Green handles sales. All three men were formerly connected with Mid-Florida Citrus Cooperative at Winter Park, a plant recently purchased and closed down by Hi-Acres, Inc., Groveland. The new Winter Garden firm has renovated the old MAC Fertilizer plant and had some new equipment installed by Allen G. Clements Co., Moultrie, Ga. The 2-ton batch mixer is equipped for ammoniation, and major equipment includes three bucket elevators, conveyor unloading system, three tractor shovels, fork lift, bagging unit, bulk loading hoppers and five bulk transports. Capacity is rated at 20,000 annual tons.

IOWA

Gordon Hoath has resigned as manager of the Consumers Co-op plant at Eagle Grove, to build a similar plant of his own. Carl Greenberg has succeeded him at the Co-op plant.

INDIANA

Plymouth Fertilizer Co. suffered a fire last month which will run to at least a $50,000 loss.

KANSAS

Cooperative Farm Chemicals new $1,000,000 addition, which will double the urea-nitrate solutions capacity at Lawrence is now expected to be ready by April, according to R. R. Zurbuchen, manager.

Vitona kit used to merchandise Vita-Brick soluble specialty goods by Leon's Horticulture Specialties Corp., Glendale, Calif. Kit contains plastic hose-attachment dispenser and two compressed cylinders of plant food, each of which covers 400 sq. ft. of lawn at nine to ten cents per square foot.

KENTUCKY

National Distillers and Chemical board chairman, John Bierwirth, far from postponing major plans, has expressed their intention to expand the operations of Louisville's Federal Chemical Company, acquired last September. The Minnesota Liquid Fertilizer Company, which was acquired about the same time, will become a unit of the Louisville concern.

LOUISIANA

Freeport Sulphur Company has placed in operation a new sulphur mine at Lake Pelto on the marshland shore of the Gulf about 60 miles southwest of New Orleans.

To mine the deposit, the company is using its unique barge-mounted plant used originally a few miles to the north at the now-depleted Bay Ste. Elaine deposit.

Lake Pelto is the second mine which Freeport opened last year. In June the company began commercial production at its major Grand Isle project, the world's first offshore sulphur mine, located seven miles out in the Gulf.

* * *

Jefferson Lake Sulphur is cutting back operations at Starks, and at the Clemens Dome, Brazoria, Texas —because of the cost of bringing up the limited quantity of sulphur now produced. The Longpoint mine has reported no change.

MISSISSIPPI

Mississippi Federated Cooperatives have bought the Meridian Fertilizer Company, Hattiesburg, for $200,000, it has been announced by Ernest Spivy, general manager of MFC, Jackson. The cooperative plans to rebuild the plant and install new fertilizer equipment to the extent of $200,000. MFC operates granulating plants at Canton, Meridian and New Albany, Miss.

NEBRASKA

Consumers Cooperative reports excellent support from cooperatives in the area to be served by the new anhydrous ammonia plant to be built at Hastings, as was announced last Fall. Asked to subscribe in an amount ten times the value of the tonnage purchased in the 59-60 season, no co-op so far approached has failed to subscribe, and the required amount from that source is almost 100% in hand. The plant is to produce 150 daily tons and to cost $8,000,000.

NEVADA

R. J. Dalton & Sons are building a plant at Carson City to process tailings from the Combined Metals operations near Pioche. The $250,000 plant will produce 400 monthly tons of a fertilizer incorporating iron, copper, zinc and manganese from the tailings. The major market will be Southern California.

OHIO

Marion Plant Life Fertilizer Co., president George H. Alber has organized a new concern to be called the **Dunkirk Plant Life Fertilizer Co.** and is building quarters for it in Dunkirk. A distributing facility, the Dunkirk operation will include a 40 x 96 foot bagged goods storage building and a 50 x 116 foot bulk warehouse. The Marion plant has just added a pollution filter system, a "National Hydro-Filter" made by National Dust Collector Corp., Chicago, the 10th and the largest such installation made in the US.

UTAH

San Francisco Chemical's phosphate mine and mill near Vernal with a scheduled start middle of last month is a 600,000 annual ton facility. Output will be trucked to the Western Phosphates plant at Garfield. The rock deposit at Vernal is estimated at 705,000,000 tons, running 20% P_2O_5.

WISCONSIN

Jacques Liquid Mixed Fertilizer Co. expect to double output and lower prices by some 5% during the year at their Prescott plant. Charles H. Jacques, plant manager, is quoted as saying the use of barge shipments has enabled them to lower ingredient transport costs.

* * *

Milorganite, on which Milwaukee made a $2 per ton profit 10 years ago, now costs $5.98 in red ink, according to local reports. The City has $10,000,000 invested in the plant, or it would be more practical, says the general manager, Raymond D. Leary, to burn the waste. The new disposal plant, now building, will not make fertilizer.

ALGERIA

Societe d'Exploitation du Gisement de Phosphate de Chaux has begun construction of the $25,000,000 phosphate complex at Djebel-Onk, site of the world's largest known phosphate ore deposits. Total reserves are estimated at 500,000,000 tons, none richer than 57%. The ore will be treated there through to the roasting, then shipped to Bone—210 miles north to an $8,000,000 treatment plant. $9,000,000 will be devoted to building a 60-mile electrified rail line from Djebel-Onk to Tebessa. End of 1962 is the schedule for the first 50,000 tons of 75% phosphate; 1964 the operation is expected to reach its full 800,000 annual ton operation.

BOGOTA

Aproqui, newly formed to make chemical fertilizers in Cartagena, has completed arrangements for a $10,000,000 bond issue. The company—Compania Organizadora de Industrial de Abonos y Productos Quimicos, Ltd.—is backed by International Petroleum and Development and Investment Co. Ltd., which includes German and US firms: Chemical Industrial International, Girdler and the Phoenix-Rheinrohr —Thyssen group.

CANADA

United Cooperatives of Ontario has officially dedicated its new plant at Tillsonburg, with an open house that drew a thousand visitors. This plant is owned by some 70,000 farmers through their membership in local cooperatives. Alden McLean is president; Donald Moffet heads the fertilizer department UCO, headquartered at West Toronto, operates plants also at West Toronto, Stratford and Thamesville.

EIRE

Goulding Fertilizers Ltd. have formally opened their plant at Cork, with the statement that "we are now within sight of meeting all of our expanding needs for phosphatic fertilisers from home sources." The Eire demand is estimated at 300,000 tons for this season, up from 254,000 in 58-59 and 186,000 in 57-58.

EGYPT

Societe Financiere et Industriell d'Egypt has let contract to Simon-Carves Ltd., for a complete sulphuric acid plant at Kfr El Zayat. Capacity will be 150 daily tons. Simon-Carves have previously built a 50 daily ton plant for the Societe, which has been running for 11 years.

—Around the Map . . .

INDIA

Fertiliser Corporation of India is an amalgamation, effective the first of this month, of Sindri Fertilisers Ltd. and Hindustan Fertilisers and Chemicals, Ltd. with a capital authorized at Rs. 75 crores. The Corporation will take over Nagal and Trombay plants at once, and later they may also take over Rourkela and Neyveli. The corporation will be responsible for all new fertilizer projects in the public sector, including the proposed Naharkatiya plant. Mr. Damle, Secretary in the Ministry of Agriculture, and chairman of both Sindri and Hindustan, is expected to head the new corporation.

Hindustan, as reported here last month, is building a $58,000,000 plant at Trombay.

KOREA

Chungju, the controversial government fertilizer plant, has been delivered to the Government by McGraw-Hydrocarbon, with the expiration of the five year contract.

NETHERLANDS

Mekog, N. V. Maatschappi tot Exploitatie van Kooksovengassen of Ijmuiden, near Amsterdam, will build a mixed fertilizer plant with 160,000 annual production, the bulk of which is intended for export. Mekog is two thirds owned by Betaafse Petroleum, part of the Royal Dutch Shell group; one third by Koninklijke Netherlandsche Hoogovens en Staalfabrieken N. V. of Ijmuiden.

* * *

Eerste Nederlandsche Cooperative Kunstmestfabriek has authorized construction of a contact sulphuric acid plant at Vlaardingen, alongside the existing Monsanto acid plant, also Simon-Carves built.

BETTER customer satisfaction —

MORE maintenance-free service —

Simonsen Spreaders

. . . advance-designed from experience . . .

Model R 710
Standard Fertilizer Spreader

—**Hydraulic fan drive** system eliminates troublesome gear boxes and slip clutches

—**Stainless steel** at all critical points . . . endgate and guides . . . apron . . . roller chains . . . adjusting bolts — ends corrosion!

—**Heavy-duty hydraulic** pump and motor, same as used on industrial equipment.

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—**Flat wire conveyor belt** of stainless steel produces uniform flow of material with positive traction.

NEWTON CROUCH

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GRIFFIN, GEORGIA

Phillips Chemical Orders Two Refrigerated Barges

Avondale Marine Ways Inc., will build two refrigerated petrochemical barges for the Phillips Chemical Company, Bartlesville, Okla.

The barges will be the largest tank carriers yet to be constructed for the chemical or petrochemical industry for this type of service. Lead barge will measure 284 feet by 44 feet by 12½ feet.

The heavily insulated tanks will handle 1700 tons of anhydrous ammonia, refrigerated to minus 28°F. by equipment installed on the barge.

Million Farms Apply ACP Conservation

Farmers used Agricultural Conservation Program cost-sharing assistance to establish conservation practices on 1,005,598 farms and ranches in the 1959 program year, according to the official summary now being published by the U. S. Department of Agriculture. These farms and ranches contained 32 percent of all U. S. farmland.

Among outstanding conservation achievements by farmers reported in the summary were 3.9 million acres of grass, legumes and trees established which take land out of intensive use for more than one crop year, another 1.7 million acres of vegetative cover improved to bring it up to conservation level and extend its normal life span, and 60,362 water storage reservoirs constructed.

USPP

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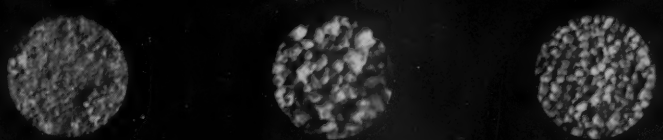

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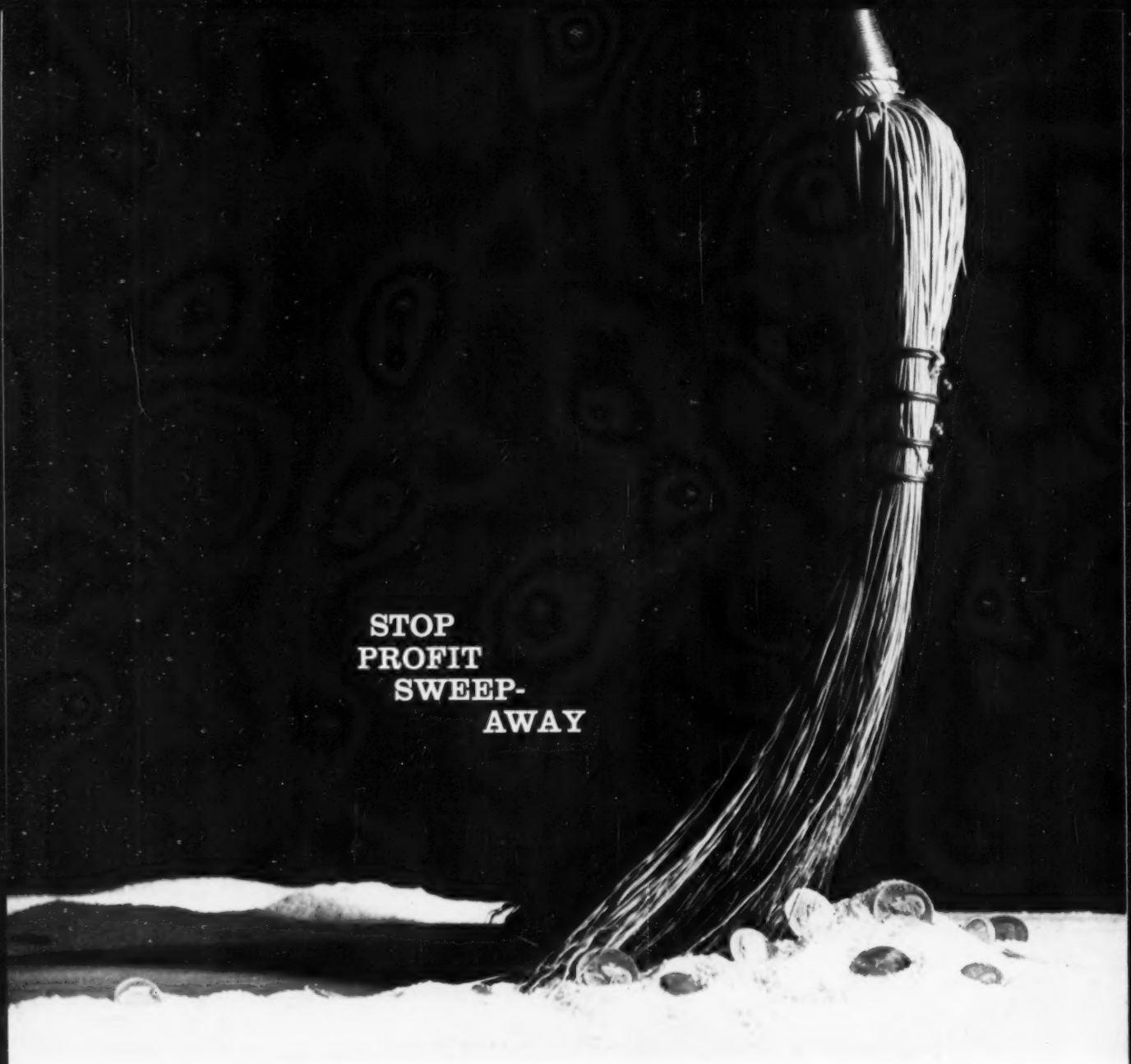
TAMPA, FLORIDA

Division

TENNESSEE TC CORPORATION



Save 10 to 20¢ per ton with St. Regis pasted valve bags

By switching to St. Regis® pasted valve bags, you can actually save up to 20¢ on every ton you pack, a cost reduction of from $5 to $10 per thousand bags.

Less expensive, more compact and stronger than sewn bags, these box-like packages are specially designed for easy palletizing. Thus, storing, handling and shipping costs are cut to a minimum. These bags also allow superior butt and edge printing for better brand identification.

You'll also want to look into another valuable packaging development from St. Regis—new Poly-Lok*, the polyethylene-film valve insert that virtually ends bag leakage.

You can convert your present valve equipment from sewn to modern pasted bags simply and quickly. Your local St. Regis packaging engineer is a fertilizer packaging specialist—ready to help you.

Pasted valve bags are another example of St. Regis *Packaging-in-Depth*. This complete bag service assures you of the *right* bag, the *right* machinery to pack it, plus the services of highly-skilled engineers. To meet your *future* needs, this program also includes continued research to develop improved packaging methods and economies.

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PACKAGING-IN-DEPTH BY St.Regis BAG DIVISION

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Association Activities

Midwest Meet to Feature Five Major Industry Topics

Five major features ranging from a study of demonstrations as 'door-openers' for plant food sales, the banker's function in fertilizer credit, and the impact of research on fertilizer use, will headline the 13th annual joint meeting of Midwestern Agronomists and Fertilizer Industry Representatives at Chicago, February 16-17.

Dr. M. B. Russell, head of the University of Illinois agronomy department is chairman of the meeting; and Dr. R. L. Cook, head of Michigan State University soil science department, is co-chairman.

The two-day sessions at the Edgewater Beach Hotel, sponsored by the National Plant Food Institute's Midwest regional office, are expected to draw an attendance in excess of 700.

The program will feature: (1) A report on the role of the Extension Service and its relationship to the fertilizer industry; (2) A discussion of the bankers role in credit for fertilizer; (3) A review of the Miami County, Ohio demonstration program and its effects on fertilizer use; (4) Fertilizer research reports by agronomists from Iowa, Kansas, Ohio and Wisconsin; (5) Analysis of a Wisconsin study on the impact of improved management practices in boosting farm income on different types of soils.

Among speakers thus far scheduled are: Dr. D. G. Aldrich, University of California, dean of agriculture, statewide; Douglas R. Graves, assistant vice president, Harris Trust & Savings Bank, Chicago; Dr. Everett Rogers, agricultural economist and Dr. Gordon Ryder, extension agronomist, Ohio State University; Dr. Marvin Beatty, extension soils specialist, University of Wisconsin.

The first day's program will open at 1:00 p.m., Thursday, February 16, with a welcome by Paul T. Truitt, president of the Institute and Zenas H. Beers, Midwest regional director.

Preceding this annual joint conference, the Institute's Executive Committee will meet on Tuesday, February 14, followed by a meeting of the Institute's Board of Directors on Wednesday, February 15.

Also slated for Tuesday and Wednesday, will be meetings of Midwestern research and extension agronomists, and of the North Central Soil Research Committee.

Coates Heads Minnesota Association

John M. Coates was elected president of the Minnesota Fertilizer Industry Association at a recent meeting in Minneapolis. He is district sales manager of plant foods for International Minerals & Chemical Corporation in Minnesota and Iowa.

The MFIA works as a liaison group between the University of Minnesota soils department, farmers and fertilizer dealers. Mr. Coates succeeds Phil Stocker of Land O'-Lakes Creameries, Minneapolis.

Sloan Elected By CFA

450 persons participated in the thirty-seventh Annual Convention of the California Fertilizer Association. James F. Sloan, Salinas, was elected president for 1961, succeeding D. W. Galbraith of Woodland. Other 1961 officers are John N. Williams, Chula Vista, vice president; L. M. Roberts, San Francisco, treasurer; C. E. McFaddin, El Centro, secretary; and Sidney H. Bierly, Sacramento, general manager. L. M. Duckworth, Fresno, and James Bonaventura, Edison, were elected for 3-year terms on the board of directors.

Tyler Macdonald, senior vice president and marketing director, Hixson and Jorgenson, Inc., Los Angeles advertising concern, spoke during the business session on "Stand Up and Be Counted." His subject was tied to support of America's private business enterprise system.

Macdonald reviewed several accomplishments of the fertilizer industry and said that early industry scientists, such as Liebig, Gilbert, and others contributed in major aspects more than did Einstein to human progress.

Leon V. Tichinin, Santa Clara County Agricultural Extension Service, University of California, San Jose, California, speaking following the business luncheon, gave an interesting account of his participation in the American National Exhibition in Moscow in 1959. He said the Russian people want peace, but they have no voice in determining the foreign policy.

CFA President Demont W. Galbraith, in his statement which opened the program, said he has noted with alarm the recent steady decline in the price of fertilizing materials to the consumer in the face of increasing costs of doing business.

L. E. Gould, chairman of the Soil Improvement Committee, and Sidney H. Bierly, Association general manager, reported on program and acomplishments during 1960.

The business session ended with an excellent panel discussion on "The fertilizer Industry—Yesterday, Today, and Tomorrow." Moderated by Howard H. Hawkins, Glendora, the panel consisted of Dr. Guy F. MacLeod, Fresno; L. E. Gould, San Francisco; and William M. Clines, Los Angeles.

The ladies enjoyed an association-sponsored cocktail hour, a golf tournament, two putting matches, and they participated with the men in a mixed bowling tournament. The men had a golf tournament at the Caliente Country Club in old Mexico.

The Kraft paper bag industry sponsored a cocktail hour and a post-dinner bingo game for all in attendance on Sunday, the thirteenth, as a get-acquainted effort,

Association Activities...

which was very well received.

American Potash and Chemical Corporation sponsored an enjoyable cocktail hour preceding the banquet on Tuesday, the fifteenth.

The wind-up banquet featured dinner dancing and awarding of all prizes.

Ammonia Institute Meets January 11-13

Emphasis will be on the agronomic aspects of direct application ammonia as the Agricultural Ammonia Institute holds its 10th annual convention in Memphis, Tenn. Jan. 11-13.

Jack F. Criswell, the AAI's executive vice president, said headline speakers would include Dr. W. P. Martin of the University of Minnesota, an authority on ammonia use and research in the North Central states; Perrin Grissom, agronomist at Delta Branch Experiment Station, Greenville, Miss.; and Dr. R. L. Beacher of the National Plant Food Institute. All will discuss ammonia's use and future in various areas.

Presiding will be Carl J. Bauserman of Southern Michigan Nitrogen Co., Midland, Michigan, President of the AAI. Toastmaster for a special 10th anniversary program will be R. W. Scanlan of Phillips Petroleum Company.

NPFI Program Active With Ag Leaders

In the waning months of the year, the National Plant Food Institute hosted luncheons and dinners for a number of organizations including agricultural leaders and agricultural communications:

A luncheon for newspaper farm editors was tendered November 27.

The American Agricultural Editors Association named NPFI's Louis H. Wilson to be chairman of the committee on arrangements for their up-coming April meeting in Washington.

The Institute was host to the National Association of Television and Radio Farm Directors at their annual banquet, November 27. Louis Wilson was named co-chairman of the summer meeting arrangements.

The Agricultural Relations Council elected Mr. Wilson to a two-year term on the board of trustees.

Pacific Northwest Busy with Meetings

The Pacific Northwest Plant Food Association is a busy organizer of meetings for the good of the farmer, the dealer and the fertilizer manufacturer. On the fire right now, for example, are these gatherings: A fertilizer industry conference at Walla Walla, Washington on January 10. A series of fertilizer dealer meetings at various points in their area, beginning January 17, ending January 25—and encompassing 6 separate meetings at 6 points.

In addition to the January 10 industry meeting, there will be one at Spokane January 24, another at Moscow, Idaho, January 25.

The Pacific Summer Conference is scheduled for June 27-29 at the Marion Hotel in Salem, Oregon, and the Annual Convention is slated to be held at the Hotel Gearhart, Gearhart, Oregon, November 2-3.

That's enough to keep any organi-

GO IMC's DIRECT LINE...

fastest route to superior fertilizer ingredients

Picture this: You're a fertilizer ingredient buyer. Your busy season's ahead. You begin the routine . . . check the list of suppliers, schedule calls, hope for fewest conflicts. The parade begins. One salesman after another — all with products that claim basic specs . . . then your own lab evaluations, shipping dates, inventory control, handling and rehandling. And all the time you hope no one on the *long list* drops the ball. It's worry season for you.

Change the scene: IMC's salesman has the answer — a full line of fertilizer products. And all quality-controlled from mine to you. Want Super? It's on track — coarse, granular, run-of-pile. Potash? Which form — muriate, sulphate . . . sulphate with magnesium? Phosphate rock the way you want it . . . the grade and grind you need. And add phosphoric fertilizer solutions too.

Above all, the consistent, dependable service and quality of IMC products result in superior fertilizer ingredients that add to the effectiveness of your finished formulas . . . their selling appeal on the farm.

Next time it's your "worry season," give the go signal to your IMC salesman. He'll help keep you on track.

Industry Meeting Calendar

DATE	EVENT	LOCATION	CITY
Jan. 11-13	Agricultural Ammonia Institute	Peabody Hotel	Memphis, Tenn.
Feb. 16-17	Midwest Industry-Agronomist Meet	Edgewater Beach Hotel	Chicago, Ill.
June 27-29	Pacific N.W. Fertilizer Conference	Marion Hotel	Salem, Oreg.
July 19-21	Southwest Fertilizer Conference	Galvez Hotel	Galveston, Tex.
Nov. 2-3	Pacific N.W. Fertiilzer Assn.	Gearhart Hotel	Gearhart, Oreg.
Nov. 8-10	Fertilizer Industry 'Round Table'	Mayflower Hotel	Washington, D. C.

zation mighty busy . . . and will give you an idea of how constructively they think on the Coast.

Illinois Forum Lists Service to Farmers

Changes in serving customers for farm supplies will be featured during a series of sessions at the University of Illinois Agricultural Industries Forum on January 31 and February 1.

J. A. Ewing, statistician in charge of the Illinois Cooperative Crop Reporting Service, will report on changes in sizes of enterprises within Illinois agriculture. C. B. Baker, U. of I. professor of agricultural economics, will discuss the effects of a lender's decisions on farm imputs.

Those interested in fertilizers and chemicals will hear, Tuesday P.M., about the future of these materials in Illinois agriculture. S. R. Aldrich, U. of I. professor of soils extension, will look to the future in soils and crops. W. N. Thompson, professor of farm management, will present the economic picture and show how use of fertilizers and chemicals fits in.

Those attending a Wednesday morning session will hear a panel discuss serving farmers with fertilizers and chemicals. Jerry Lyons, a fertilizer and farm management consultant, will present his views on helping farmers determine their needs. Ollie Myers, fertilizer dealer from Lexington, will discuss "How Many Types and Analyses Should Be Provided?" Ward Lawler, manager of the Plant Food Division, Illinois Farm Supply Company, will present views on the question, "How Far Do We Go in Providing Services?"

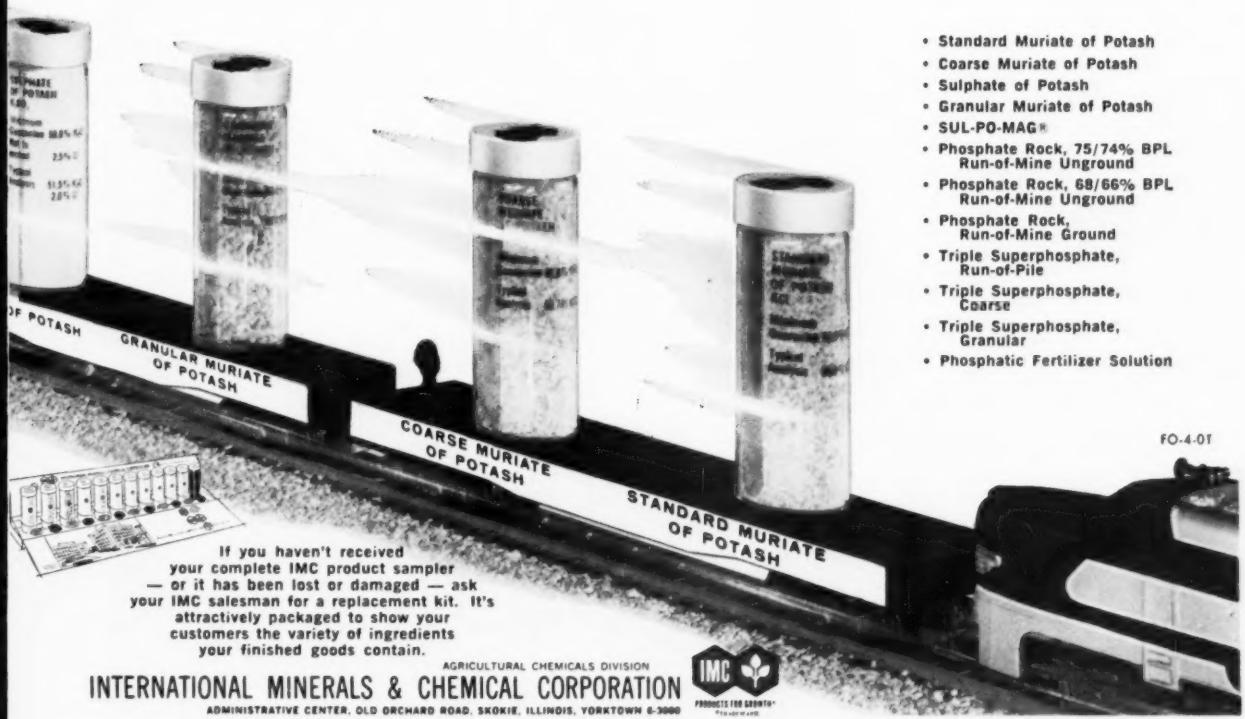
A complete program and reservation forms can be obtained from the Department of Agricultural Economics, University of Illinois, 305 Mumford Hall, Urbana.

ILLINOIS AG FORUM LEADERS

Special sessions on marketing farm supplies and equipment, fertilizers and chemicals, buildings and equipment, and feed are scheduled for the University of Illinois Agricultural Industries Forum, January 31-February 1 at Urbana. Special session chairmen include: (left to right) W. N. Thompson, fertiilzer and chemicals; John E. Wills, buildings and equipment; E. E. Broadbent, general chairman; Harold G. Halcrow, head of the department of agricultural economics; and R. J. Mutti, feed. Topics scheduled include: serving customers for farm supplies, mechanizing feeding operations, the future of fertilizer and chemicals in Illinois agriculture, alternative ways of serving livestock feeders, serving farmers with fertilizers and chemicals, and farmstead planning and financing.

More Association News
On Next Page

ON TRACK WITH THE ANSWERS TO ONE-SOURCE PRODUCT SUPPLY



- Standard Muriate of Potash
- Coarse Muriate of Potash
- Sulphate of Potash
- Granular Muriate of Potash
- SUL-PO-MAG®
- Phosphate Rock, 75/74% BPL Run-of-Mine Unground
- Phosphate Rock, 68/66% BPL Run-of-Mine Unground
- Phosphate Rock, Run-of-Mine Ground
- Triple Superphosphate, Run-of-Pile
- Triple Superphosphate, Coarse
- Triple Superphosphate, Granular
- Phosphatic Fertilizer Solution

FO-4-01

If you haven't received your complete IMC product sampler — or it has been lost or damaged — ask your IMC salesman for a replacement kit. It's attractively packaged to show your customers the variety of ingredients your finished goods contain.

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IMC PRODUCTS FOR GROWTH

Association Activities . . .

ASA Honors 20 at Meeting With Soils and Crops Societies

Bertramson Heads ASA

B. R. Bertramson, chairman of the agronomy department, Washington State was installed president of the American Society of Agronomy during their 53rd annual meeting in Chicago last month. He replaces George F. Sprague of USDA's Agricultural Research Service. New vice-president of the Society is Glenn W. Burton, Coastal Plains Experiment Station, Tifton, Ga.

Cowan Leads Crop Science

J. R. Cowan of Oregon State is the new president of the Crop Science Society of America, with R. P. Murphy of Cornell as the new vice-president. They were elected at the joint meeting with ASA and the Soil Science Society of America last month.

Soil Science Elects Nelson

Werner L. Nelson, mid West manager of American Potash Institute was elected president of the Soil Science Society of America at their annual meeting last month, in conjunction with the 53rd annual meeting of ASA in which the Crop Science group also participated. Vice-president is C. A. Black, Iowa State.

ASA Awards and Fellowships

At the 53rd annual meeting of the American Society of Agronomy, last month in Chicago, its highest awards were presented to three of the nation's outstanding scientists:

Dr. Michael Peech, Cornell University, received the Society's soil science award; Dr. S. T. Dexter, Michigan State University, the crop science award; and Dr. J. K. Patterson, Washington State University, the crop science award; and Dr. J. K. Patterson, Washington State University, the agronomic education award. Each award carries with it $250 in cash.

Fellowships went to twenty outstanding agricultural scientists:

Soils Fellows — Dr. Charles A. Bower, U. S. Salinity Laboratory, Riverside, Calif.; Dr. H. B. Cheney, Oregon State College; Dr. James Walter Fitts, North Carolina State College; Dr. C. Dale Hoover, Mississippi State University; Dr. James J. Martin, University of California; Dr. Russell T. Odell, University of Illinois; Jouette Clark Russel, University of Nebraska; Dr. Champ B. Tanner, University of Wisconsin; Dr. George D. Thornton, University of Florida, and Dr. Eugene P. Whiteside, Michigan State University.

Crops Fellows — Dr. Carter W. Harrison, Michigan State University; Dr. Glenn C. Klingman, North Carolina State College; Oscar R. Mathews, Soil and Water Conservation Research in the Great Plains, Agricultural Research Service; Dr. Albert H. Hoseman, Director of Agricultural Sciences, Rockefeller Foundation; Dr. Fred L. Patterson, Purdue University; Dr. Louis P. Reitz, Leader, National Wheat Production and Improvement Investigations, USDA, Beltsville; Dr. T. Hayden Rogers, University of Georgia; Dr. Robert E. Wagner, American Potash Institute; Dr. John B. Washko, Pennsylvania State University; and Dr. Rollo W. Woodward, Agricultural Research Service at Utah State University.

Chemical Engineers Talk Pollution Control

John J. Healy, an executive of the Monsanto Chemical Company, St. Louis, Mo., was named president of the American Institute of Chemical Engineers (A.I.Ch.E.), representative body of the chemical engineering profession, for the coming year during their 53rd annual meeting, in Chicago last month.

Elected to the board of directors for three-year periods were Robert J. McNally, vice-president of Garfield Chemical and Manufacturing Corp., Salt Lake City; Max S. Peters, head of the division of Chemical Engineering, University of Illinois, Urbana, Ill., Carl F. Prutton, executive vice-president, Chemical Division, Food Machinery and Chemical Corp., New York; and Robert R. White, former director, Institute of Science and Technology, University of Michigan, Ann Arbor. Dr. White recently was named a vice president of the Atlantic Refinery Co., Philadelphia.

Subjects of interest to the fertilizer industry included research to develop new uses for farm products, and the twin subjects of air and water pollution.

Virgil E. Sohns, in a paper on fermentation, stated that some 40,000,000 bushels of grain have been put to work by industry through fermentation, using a process developed by the USDA laboratory which is hunting new and better ways to use U.S. farm products.

Papers on air pollution control were presented by Lauren B. Hitchcock on the challenge; by A. B. Walker and E. J. Malarkey on electrostatic precipitation.

K. S. Watson urged stepped up efforts, a joint attack by the Chemical Engineers and the American Chemical Society. Francis R. Taylor spoke on exhaust gases, his list of fumes yielding to catalytic removal techniques including nitrogen oxides.

Minnesota Soil Tests Set New Record

More than 1,200 soil samples per week are still pouring into the University of Minnesota's Soil Testing laboratory. By mid-November the year's total stood at 25,500—more than 13,000 of these received between September 1 and November 15 during the Fall Soil Sample Roundup.

To save money and gain greater yields, more farmers each year base their fertilizer applications on a soil test. And each year more farmers take soil samples in the fall so they have test results before they order fertilizer for the next spring.

A denomination of soil testing enthusiasm took place recently during a two-day sampling drive in Minnesota's Pennington County. According to Paul Stelmaschuk, county agent, 763 soil samples were brought in within 48 hours. That's almost twice the number turned in during a similar drive a year ago.

In the Pennington County campaign 188 farmers brought in samples, an average of 4.1 apiece. A single sample furnishes the plant food analysis for up to 10 acres of land. Total acreage represented by

the samples was 23,776. That compares with 12,240 acres sampled there a year ago.

Arkansas Groups Join NPFI in Soil Tests

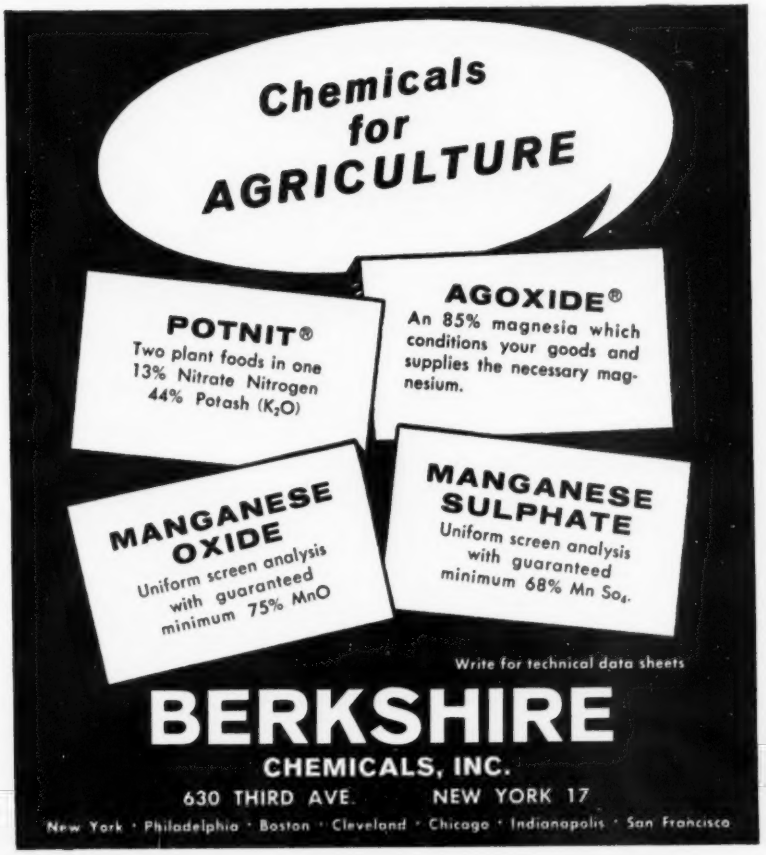
Following a concentrated soil testing campaign in Lawrence County, Arkansas, in the fall of 1958, annual soil sampling more than doubled, lime consumption went up 40 per cent, and the use of total plant food increased 25 per cent over the previous year, according to Woody N. Miley, extension soils specialist.

Then in 1960 plant food use was up 40 per cent and lime use 57 per cent over the amount used in 1958. Despite a hard spring, 1960 crop yields were far above the long-time average. Local leaders credit part of this to a better plant food supply on most farms.

Lawrence County was the first of five to launch intensified soil fertility projects in cooperation with the National Plant Food Food Institute. Other counties are Boone, Little River, St. Francis, and Desha. Several other counties conducted similar efforts on their own. All of these counties reported a boost in soil testing and the use of needed plant food through the county-wide efforts.

In the five counties as a whole farmers in 1960 used 13 per cent more plant food than in 1958. This compared with a 6 per cent increase for the state during the same period. Soil sampling the year following the special effort was up about 250 per cent above that of the preceding year.

Soil testing continues to boom statewide. Farmers submitted a record number of soil samples to the University of Arkansas during the year ending July 1, 1960. A total of 39,141 samples from 75 counties were analyzed by the two Arkansas Agricultural Experiment Station laboratories, 6 per cent more than was tested any previous year. During the same period, crops received a record amount of plant food. Farmers used a total of 144,198 tons of nitrogen, phosphate, and potash—8,250 tons more than any previous annual amount, according to figures based on Arkansas State Plant Board reports. Use of limestone is on the increase, too; an all-time record of 417,374 tons was used in 1959, according to National Limestone Institute reports.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Two plant foods in one
13% Nitrate Nitrogen
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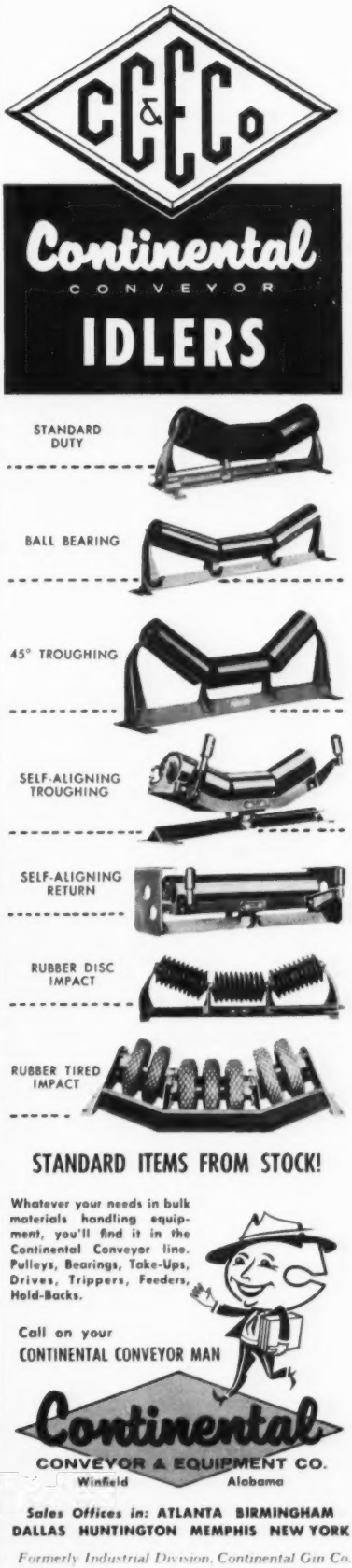

TGS...

RAIL AND WATER SHIPMENTS

In order to better serve our far-flung customers in the process industries, we have developed at Beaumont, Texas the most modern Sulphur storage, handling and loading facilities in the world. This terminal and shipping center is now receiving deliveries from all four major TGS properties in Texas: Spindletop, Moss Bluff, Newgulf, and Fannett - the most recent mine to be developed.

. . . is now operating at **Beaumont, Texas**

THE WORLD'S NEWEST SULPHUR TERMINAL

. . . for Solid Sulphur

. . . for Molten Sulphur

A few of the design features of this terminal may be of interest:

- **It receives, stores, and loads both solid and molten sulphur.**
- **It can load simultaneously 1 dry cargo ship of 20,000 tons capacity, 3 molten sulphur barges and 1 molten sulphur tanker. There's a holding dock where a second cargo ship can be tied up. The barge basin will accommodate 12 sulphur barges.**
- **Storage capacity totals 31,000 tons for molten sulphur and 1,000,000 tons for solid sulphur. Loading capacity for molten sulphur ranges up to 3,000 tons/hour, tanker and barge simultaneously; for solid sulphur the loading capacity is 1,200 tons/hour into ship or barge.**

This development at Beaumont is but another step in the broadening delivery service program now being carried out by TGS. Regional distribution centers, handling molten sulphur, are already in operation at Cincinnati, St. Louis and Tampa. Coinciding with the full operation of our main terminal at Beaumont will be the opening early in 1961 of two coastal terminals at Carteret, New Jersey, (26,000 tons molten sulphur storage) and Norfolk, Virginia (20,000 tons). Other terminals are in the planning stage.

TEXAS GULF SULPHUR COMPANY
75 East 45th Street, New York 17, N. Y.
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Sulphur Producing Units: **Newgulf, Texas • Spindletop, Texas Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada.**

Research Briefs

Tax exemption for scientific research may finally become a reality. Some time back the Internal Revenue Service put out a definition. This met with objections and was withdrawn. The problem is to define what is a research operation entitled to be tax-exempt . . . pure research being the kind everybody agrees on.

Private industry is backing research more and more. A good example is the University of Florida, which gets many thousands of dollars a year—such as the $5,000 grant recently awarded them by International Minerals & Chemical.

Fallout defense turns out to be plenty of fertilizer. The vigorous fertilizer program which must be used in the production of vegetables in Florida serves to reduce the amount of fallout present in the State's produce. This from Dr. G. K. Davis, director of nuclear science at the University of Florida.

Contaminated water can best be flushed out of the soil when you apply the water slowly, through sprinklers, avoiding ponding at the surface. Otherwise the good water mixes with the bad, and moves downward too fast to remove the contaminant from the smaller pores between soil particles. Biggar and Nielson, University of California, came up with this. If you have such a problem, write them at the Davis AES.

N content can be determined in a new comprehensive, single-procedure method developed by Dr. Charles W. Gehrke, University of Missouri. It works with all types of fertilizer, including those with high chloride-nitrate ratios, and it has been approved by the Association of Official Agricultural Chemists.

Fish production is being given special study by the University of California. Charles R. Goldman, their fresh water specialist, reports that the addition of molybdenum has resulted in the increase of phytoplankton, population, the first link in the "food chain." Your editor wishes Charles would come East and explain to the managers of the lake we live on the basic timing of lake fertilization. We have two factions. Mr. Goldman, if you know the answers, please send them!

Borers won't eat a new breed of corn which University of Illinois scientists are developing. So they leave it alone. Which will be fine for the corn grower, as well as the corn eater—because it tastes just fine to people and grain-eating animals.

Strip tillage, which involves working a strip of soil, narrow and 5 to 7 inches deep not only saves the farmer $3 to $6 in fitting their seed beds, but produces as good or better yields than conventional tillage. This keeps the seedbed good for the period of germination and emergence, and does not compact the root bed. Dr. Gordon J. Ryder, Ohio State University, has all the details.

Wasted sunlight: Farm crops and other green plants make use of less than one percent of the sunlight falling on the earth, according to Farrington Daniels, world authority on solar energy, from the University of Wisconsin. There's not much been done about this, except in the lab, where plants absorb as much as 30%. Outdoors the sunlight is too intense to be used efficiently. This sounds like a research project for the future.

Earthworms, recruited to dig deep into the claypan, and help solve drainage problems are the idea of C. K. Martin, University of Illinois.

RENNEBURG LAB DOES PRODUCT PRE-TESTING

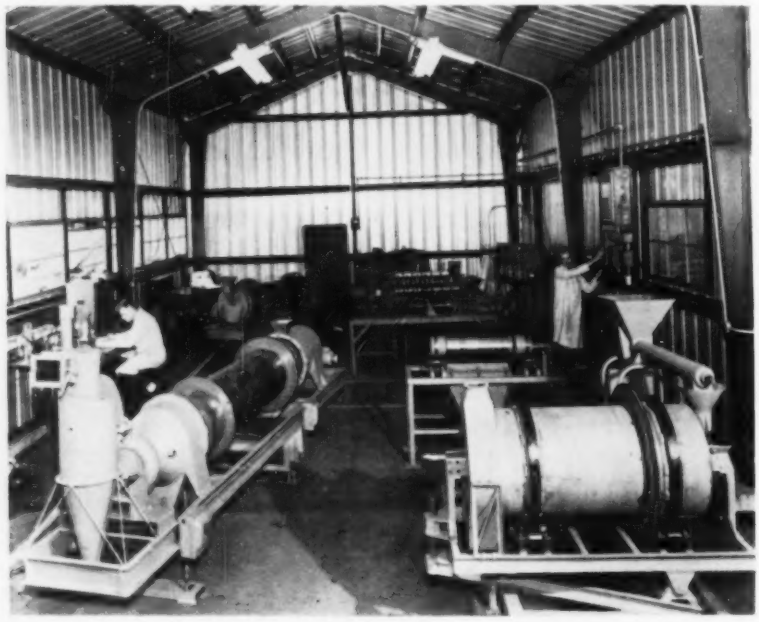
To keep pace with the rapidly growing demand for product and pilot pre-testing, Edw. Renneburg & Sons has recently completed their new Research & Development Center. Located near their main plant at 2639 Boston Street in Baltimore, the new Center includes a modern product testing laboratory and pilot plant facilities.

Here, variables in blending, granulating, liquid extraction, drying, and calcining are solved. Variations in pilot dryer pre-testing are achieved by specially designed and constructed units that permit the rearrangement and modification of lifting and distributing flights, air handling systems, and air heating furnace to other working parts.

The performance and results of any type of rotary and flash dryer can be duplicated at the Renneburg Research & Development Center. Scale-up data and operational procedures are obtained and the best method of processing a product is recommended.

Self-contained, p o r t a b l e, semi-production pilot unit operations are available for purchase or rental for pre-test runs of materials at a customer's own plant site.

Part of the new product-testing facilities, some of which are portable and can be taken right to the customer's own plant for on-site testing.



—of This and That . . .

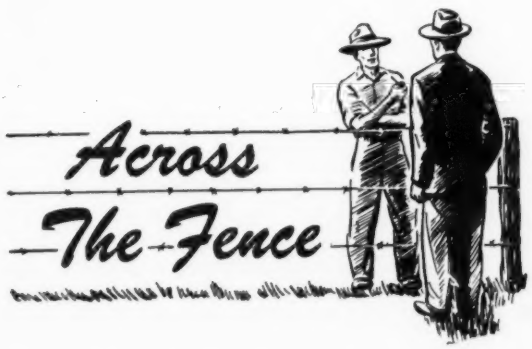
INDUSTRY MEMBERS RETIRE

DR. JACOB

——Kenneth D. Jacob, recognized as a world authority on fertilizer chemistry and technology, retired January 31 as Special Assistant to the Director, Soil and Water Conservation Research Division after more than 42 years of Federal service. Through the years his counsel has been sought in many quarters, inside and outside of Government circles both at home and abroad. The Division is planning a retirement party and reception for "Jake" in the Auditorium at the Plant Industry Station, Beltsville on Tuesday, January 31, at 2:00 p.m. and his friends are invited to make this a pleasant occasion for him and Mrs. Jacob.

——Also heading for retirement is J. C. "Jack" Crissey, Division Manager, Coop. G. L. F. Soil Building Service, Ithaca, who was honor guest December 20 at a dinner given by friends in the industry. The committee in charge of arrangements—Walt Colvin, Allied Chemical, Bob Lenhart, Potash Company of America, Bill Caspari, Davison Chemical. Many reports say it was quite an affair and the send off given "Mr. Fertilizer himself" will be long remembered.

——Another "retiree"—is there such a word?—is Arthur "Dutch" Schultz, longtime president of Reading Bone Fertilizer Co., Reading, Pa. and permanent chairman of horseshoe pitchers at the annual industry meeting at The Greenbrier. But Dutch retired Jan. 1 from one business to head, as president, another new corporation, Poultry Biproducts, Inc., already in operation.



facts to help you sell

The cost-price squeeze can be licked with good management. Sound tillage, good seed, control of weeds and insects — and the use of the recommended quantities of fertilizer, based on soil tests . . . this is what it takes, according to soils specialist Dr. Curtis J. Overdahl, University of Minnesota.

Dollars for soil-testing bring more return than any other crop-production cost, according to Dr. W. F. Bennett, Texas A&M soil chemist. An improper nutrient balance in soil can reduce the effectiveness of fertilizer, he says, and the best place to find out how much fertilizer or lime the soil needs is in the laboratory.

In Tennessee's Greene County a group of farmers carefully followed the soil test and college recommendations on their Burley tobacco. They increased their production by 438 pounds per acre of their previous 3-year average. All except one made a better net profit per acre, even though the new program cost more to carry out. The one farmer who did not profit was afflicted with Black Shank, which of course cut his yield.

This work was part of the Tennessee Efficient Crop Production Program.

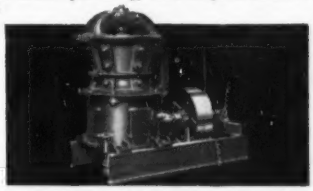
NO MAJOR REPAIRS IN 25 YEARS*

Sturtevant Construction Assures Long Mill Life at Top Loads

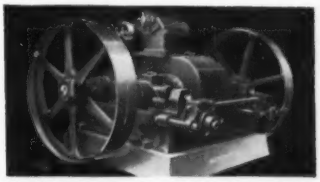
Sturtevant crushing and grinding machinery answers the long life top-load production problem for medium to small size plants. Many Sturtevants have been operating above rated capacities for more than 25 years, and *without a major repair.*

"Open-Door" design gives instant accessibility where needed — makes cleanouts, inspection and maintenance fast and easy. Machines may be set up in units to operate at equal quality and capacity.

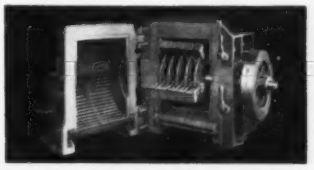
Jaw Crushers — Produce coarse (5 in. largest model) to fine (⅛ in. smallest model). Eight models range from 2 x 6 in. jaw opening (lab model) to 12 x 26 in. Capacities to 30 tph. All except two smallest sizes operate on double cam principle — crush double per energy unit. *Request Bulletin No. 062.*



Rotary Fine Crusher — Reduce soft to medium hard 3 to 8 in. material down to ¼ to 1¼ in. sizes. Capacities up to 30 tph. Smallest model has 6 x 18 in. hopper opening; largest, 10 x 30 in. Non-clogging operation. Single handwheel regulates size. *Request Bulletin No. 063.*



Crushing Rolls — Reduce soft to hard 2 in. and smaller materials to from 12 to 20 mesh with minimum fines. Eight sizes, with rolls from 8 x 5 in. to 38 x 20 in.; rates to 87 tph. Three types — Balanced Rolls; Plain Balanced Rolls; Laboratory Rolls — all may be adjusted in operation. *Request Bulletin No. 065.*



Hammer Mills — Reduce to 20 mesh. Swing-Sledge Mills crush or shred medium hard material up to 70 tph. Hinged-Hammer Pulverizers crush or shred softer material at rates up to 30 tph. Four Swing-Sledge Mills with feed openings from 6 x 5 in. to 20 x 30½ in. Four Hinged-Hammer Pulverizers with feed openings from 12 x 12 in. to 12½ x 24 in. *Request Bulletin No. 084.*

**Reports Manager W. Carleton Merrill concerning Sturtevant Swing-Sledge Mill at James F. Morse Co., Boston.*

STURTEVANT
MILL COMPANY
153 Clayton St., Boston 22, Mass.

HONORS

Aldrich

The University of Rhode Island last month conferred an honorary of science degree upon the head of the University of California's division of agricultural sciences, University Dean Daniel G. Aldrich, Jr.

The ceremony, with URI President Francis H. Horn conferring the degree, followed an address by Dean Aldrich on the role of agriculture and the nation's land-grant colleges in an industrial economy.

Cunningham

Glenn Cunningham, assistant farm editor of the Des Moines, Iowa REGISTER AND TRIBUNE and Co-editor of the IOWA FARM AND HOME REGISTER, was honored as the "Newspaper Farm Editor of the Year," in a nationwide contest sponsored by the Newspaper Farm Editors Association and the National Plant Food Institute, at a special luncheon ceremony at the Conrad Hilton hotel in Chicago.

Louis H. Wilson, Secretary and Director of Information of the Institute, presented to him a handsome scroll as the "Newspaper Farm Editor of the Year."

Wofford

Dr. Irvin M. Wofford, director of agronomy for Southern Nitrogen Co., Savannah, Ga., has been elected president of the University of Georgia's Agricultural College Alumni Association.

Wofford

As president, Dr. Wofford will direct the statewide association's continuing efforts to cooperate with and support the programs of the College.

Wiley Award Nominations Due

Dr. C. O. Willits, president of the Association of Official Agricultural Chemists, announced that nominations are now being accepted for the fifth AOAC Harvey W. Wiley Award for Achievement in Analytical Methods. This award of $500 will be given to the scientists or group of scientists who have made outstanding contributions to the development of analytical methods for foods, drugs, cosmetics, feeds, fertilizers, and pesticides or for use in general analytical chemistry.

Nominations must be submitted to the Secretary of the Association by April 1, 1961. Nominees need not be members of the Association. Further information about the award may be obtained from the Secretary, William Horwitz, Box 540, Benjamin Franklin Station, Washington 4, D. C.

Simplot Cleared in Explosion "Hazard"

An explosion at the J. R. Simplot Co. fertilizer plant, Pocatello, Idaho Nov. 30, which killed two workmen raised a question of dangerous conditions which should have been corrected, but the state labor commissioner said the explosion was "not the result of any existing hazard."

Mel Vinyard, branch manager of the insurance group, which insures Simplot, asserted Dec. 2 that the J. R. Simplot Co. was "subjected to undue criticism" because of the accident.

"It is our conclusion that the mishap was not the result of any hazard associated with normal production or operational maintenance," he added.

Pamphlet Sells Workers On Safety

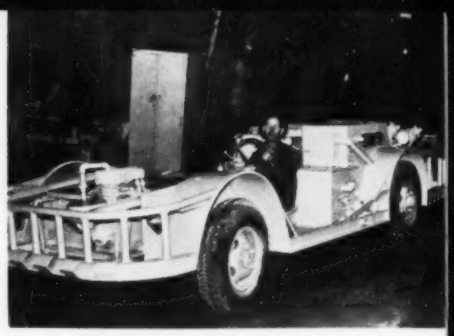
"The Big Payoff" is the title of a new National Safety Council publication aimed at selling employes on the value of their companies' accident prevention program.

The 12-page, four-color cartoon pamphlet includes some straight-from-the-shoulder talk about how employes benefit from taking an active part in a safety program.

It tells of the effect of accidents on the worker and his family, and shows how he is the real winner in a 'round-the-clock safety program.

"Employes who have a personal stake in a safety program tend to be safer workers," according to the Council.

Further information on "The Big Payoff" is available from the Council, 425 N. Michigan Ave., Chicago 11, Ill.



FRONT OR REAR ENGINE?

While automakers loudly debate the relative merits of front and rear end engine cars, International Minerals & Chemical Corporation has quietly built a car with the engine right in the middle.

Detroit auto manufacturers can breathe easily, though. The IMC middle-engine entry will never see the light of day. It is a service car that works 900 feet underground in IMC's potash mine at Carlsbad, N. M.

IMC offers a strong argument in favor of their design—the front and rear ends were needed for mining equipment.

The racy looking vehicle is only 48-inches high. The low silhouette is functional, allowing the service car to go through low-ceiling tunnels right up to the mine face.

On the front end of the car is an air compressor. It furnishes air for tires on jumbo drills, undercutters and shuttle cars at the face. The compressor also furnishes air for the pressure grease guns mounted on the rear.

The service car, IMC maintenance men say, has solved the problem of getting lubricating materials and equipment into the far reaches of the mine.

Starting with a transmission and diesel motor from an old Jeep, body and frame were fabricated in the mine's own maintenance shop.

Obituaries

John Albert Becker, retired secretary and comptroller for Armour Agricultural Chemical Co., died December 19 at Atlanta, Ga. after an illness of several weeks.

William A. Ford, 57, fertilizer plant superintendent for Albany Warehouse Co., Albany, Ga. was trapped and died December 1 when a ledge of fertilizer fell on him.

Ralph E. Fraser, 66, vice president of Summers Fertilizer and Northern Chemical Industries, died December 9 of a heart attack.

Paul Greening, 68, founder of Greening & Smith Chemical Fertilizer Co., died November 29 in hospital, after an attack at the Rolling Ridge Ranch, Chino, Cal. which he owned.

Dr. Paul H. Hornburg, 57, president of Wisconsin Plant Food Inc. died November 20 at his home in Watertown, Wisconsin, of a heart attack.

Simon J. Martenet, 77, president of E. Rauh & Sons Fertilizer Co., died December 11 in an Indianapolis, Ind. hospital after a short illness. He was founder of Marion Manufacturing Corp., maker of sulphuric acid.

Max Earl Souder, 71, retired in 1955 after managing Armour Agricultural Chemical Company's plant at Cartaret, N. J. for 22 years, died unexpectedly at his home in Buena Vista, Va. December 13.

Survey Shows

New High On Farm Realty Taxes

STATE AND LOCAL RATES 8% HIGHER IN 1960 THAN IN 1959

U. S. farmers last year paid the biggest farm real estate tax bill on record, according to a U. S. Department of Agriculture study released in the December AGRICULTURAL RESEARCH.

These State and local taxes, levied in 1959 and payable for the most part in 1960, amounted to $1.2 billion an increase of 8 percent over 1958 levies and the sharpest annual rise since 1948.

Tax per acre of farmland rose from an average of $1.03 in 1958 to $1.11 in 1959. The study, by Agricultural Research Service farm economist F. D. Stocker and associates, was based on an annual nationwide survey of more than 27,000 sample farms and involving the cooperation of 3,000 local tax officials.

Stocker says taxes were higher in 48 States (estimates for Alaska and Hawaii were not available), but increases varied greatly. West Virginia reported the biggest increase—20.1 percent, and Virginia the smallest—1.6 percent. In 13 States, taxes went up more than 10 percent, and in 22 States between 5 and 10 percent. Increases of less than 5 percent were reported in 10 States.

Taxes per acre of farmland also varied from $9.15 in New Jersey to $0.10 in New Mexico. Farmers in 14 States paid more than $2 per acre, in 10 States between $1 and $2, and in 24 States less than $1.

These variations in total and per-acre tax levies reflect differences in value of farmland and improvements and in tax systems. In the Northest, for example, where taxes per acre averaged highest, farms are generally small and intensively operated, with a high value per acre and a large average investment in buildings and other improvements. In addition, the property tax in this area is a relatively important source of State-local revenue.

In the Mountain States, where taxes per acre are low, much farm acreage is low-value grazing land, with relatively few improvements.

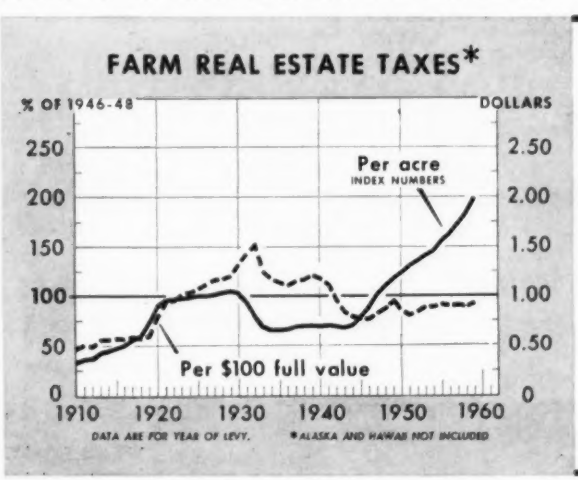
A comparison of taxes in the different type-of-farming areas showed they were highest in fruit, truck, mixed-farming, and dairy areas. Average tax per acre was more than 3 times the national average. They were lowest in the range-livestock and cotton-farming areas, where the per-acre tax averaged less than half that for the country as a whole.

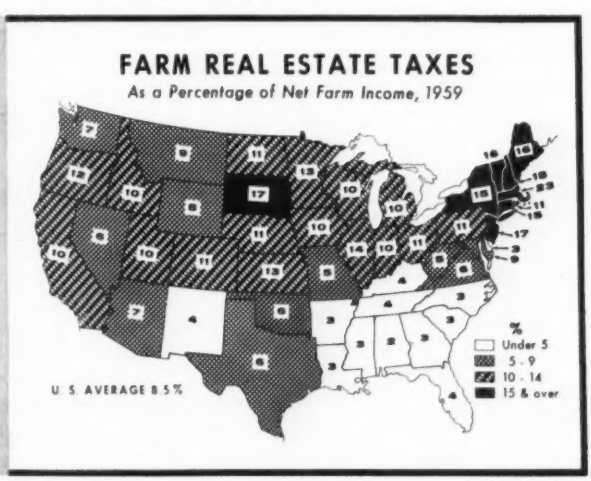
Tax-value relationship changed

In recent years, the uptrend in farm taxes has been closely matched by a rise in the market values of farm real estate, and taxes have remained around $0.90 per $100 of full value. Last year, however, land values rose only about half as much as in the preceding 3 years. As a result, the higher tax levies pushed the tax-to-value relationships from $0.89 per $100 in 1958 to $0.93 in 1959—the highest tax per $100 of full value since 1949.

The continued rise in farm real estate tax levies is a direct result of the expanding revenue needs of local governments. In 1957, for example, less than 2 percent of the total general property tax in the United States was collected by State governments. The other 98 percent, totaling $17 billion, went for schools, highways, welfare, and other local activities.

Taxes absorbed 8.5 percent of net income in 1959, compared with 6.8 percent of 1958 income. Tax per $100 of full value was highest since 1949. Three-fourths of the tax payments was spent on financing schools, highways and welfare.





"More Protection Per Pound" Heptachlor Theme

"More protection per pound" is the new theme highlighting the 1961 Heptachlor soil insect sales promotion campaign for the Midwest. This year's campaign is the strongest Heptachlor Midwest soil insect program to date, and the largest program supporting the agricultural chemical trade ever conducted by Velsicol Chemical Corporation, basic producers of technical Heptachlor.

The substantial yield increases that result from its use have greatly increased the demand for Heptachlor. In 1961, treated acreage is expected to rise sharply.

The 1961 Heptachlor soil insect control program for the Midwest covers all areas of advertising and merchandising in depth.

All new literature has been prepared for the program. A brand new full color soil insect book is designed to help the farmer recognize and solve the problem. A counter top literature dispenser is ready for the booklets. Colorful, giant size two sided posters for window, wall or wire are 2 feet high by 5 feet wide. One side is a duplicate of the Heptachlor billboard. The other side shows how to apply Heptachlor.

Other new literature includes new folders on liquid fertilizer, dry fertilizer, use of granules, and cutworm control.

Farm Families Borrowed $342 FHA Millions

American farm families borrowed an estimated $342 million through the Farmers Home Administration's field offices during 1960, the U. S. Department of Agriculture said December 13.

This compared with $333.5 million loaned in 1959 and with an annual average of $343 million for the preceding 4-year period.

The current rise above the 1959 total was due primarily to an increase in funds loaned for farm operating purposes, and reflected mounting costs of equipment, livestock, and other operating expenses necessary to keep pace with today's technological advances.

CF Staff-Tabulated TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by Cooperating State Control Officials and Tabulated by COMMERCIAL FERTILIZER Staff

	November		October		July-Sept. Quarter		January-June		July-December		YEAR (July-June)	
STATE	1960	1959	1960	1959	1960	1959	1960	1959	1959	1958	1959-60	1958-59
Alabama		32,554*	51,405	38,714	79,756	91,258	869,240	846,309	180,959	199,250	1,050,199	1,045,560
Arkansas	3,360	3,019	10,401	8,516	42,604	41,802	303,835	289,363	58,713	63,767	362,548	353,130
Georgia	89,908	55,860	43,181	53,112	131,927	135,678	1,102,220	1,130,998	299,194	294,751	1,401,414	1,425,749
Kentucky		8,985*	30,983	27,204	47,781	49,489	461,786	483,820	108,734	99,460	570,520	591,380
Louisiana	11,185	10,816	21,568	13,982	33,884	25,276	224,087	201,642	66,744	64,152	290,821	265,794
Mississippi	16,924	21,902	34,718	26,436	80,325	75,505	547,221	516,917	142,576	176,371	689,797	693,288
Missouri		23,877*	98,306	66,272	151,075	147,812	524,336	563,055	277,708	370,036	802,044	933,090
N. Carolina		40,883*	55,448	31,235	71,020	60,446	1,381,263	1,468,704	175,533	228,055	1,556,796	1,696,759
Oklahoma		4,606*	24,273	20,242	61,396	45,939	72,246	64,738	72,511	68,848	144,757	133,586
S. Carolina	21,541	22,096	27,650	13,232	46,364	47,443	678,986	756,100	104,903	134,202	783,889	890,302
Tennessee	5,581	7,408	26,203	20,472	83,583	78,916	480,429	443,602	117,275	127,116	607,727	570,718
Texas	30,668	31,631	54,153	53,074	124,709	115,509	474,627	441,851	233,410	222,800	708,037	664,651
California		(reports compiled quarterly)			219,501	204,000	813,116	803,261	465,495	459,735	1,278,611	1,262,996
Virginia		(reports compiled quarterly)			74,530	68,631	591,113	618,965	141,177	160,178	732,290	779,143
Indiana		(reports compiled semi-annually)					828,164	856,316	321,956	316,341	1,150,120	1,172,657
New Hampshire		(reports compiled semi-annually)					14,488	16,143	3,694	4,746	18,182	20,889
TOTAL	179,167	152,732	478,289	372,491	1,248,453	1,187,204	9,367,157	9,513,181	2,770,582	2,989,808	12,147,752	12,499,692

(not yet reported) * Omitted from column total to allow comparison with same period of current year.

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1 — 7'-6" x 62' rotary cooler, 1/2" welded
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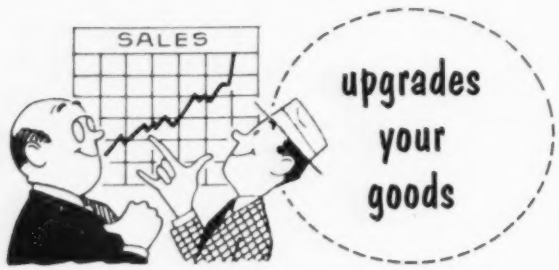

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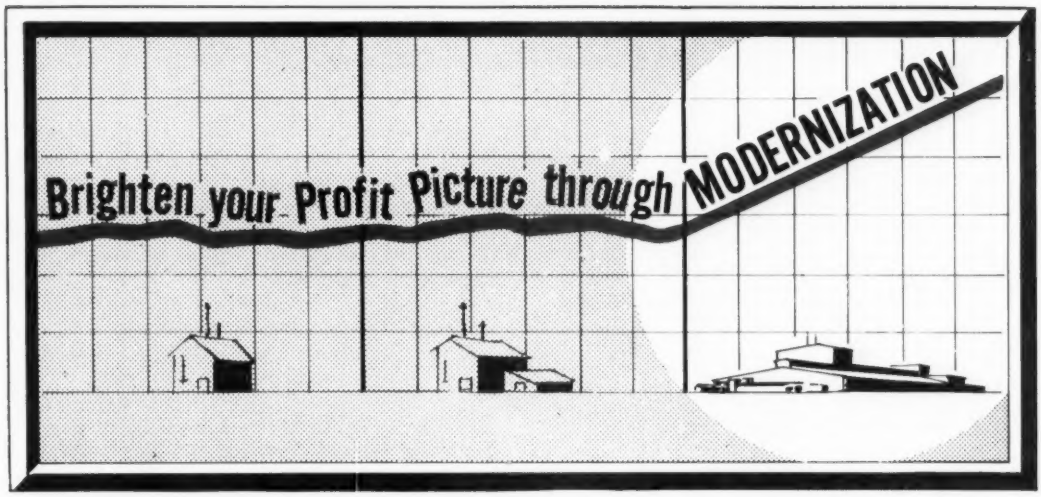

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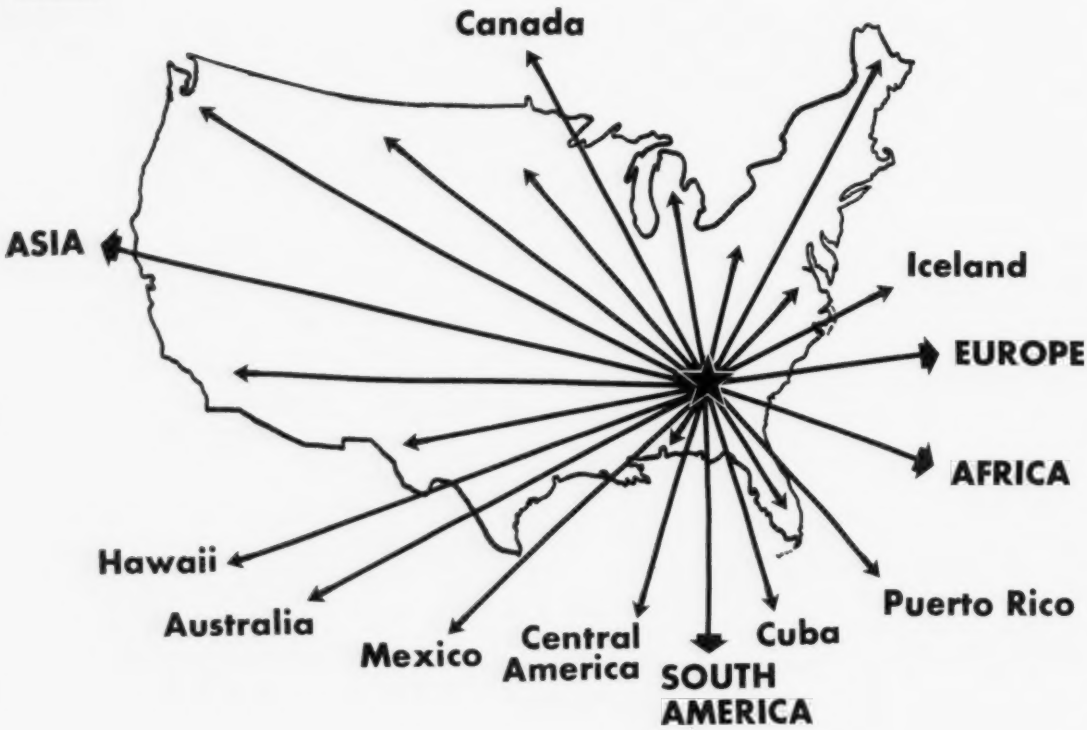

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